# The ARCHITECTURAL RECORD

DECEMBER 1922

PUBLISHED IN NEW YORK

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**WEST CHELMSFORD, MASS.**

# The ARCHITECTURAL RECORD

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THE MICHIGAN AVENUE BRIDGE — IMPROVEMENT OF MICHIGAN AVENUE AND PINE STREET, CHICAGO, ILLINOIS.
*The Wrigley Building in the background.*

# THE ARCHITECTVRAL RECORD

VOLVME LII NVMBER 291

DECEMBER, 1922


## The CHICAGO RIVER BRIDGES

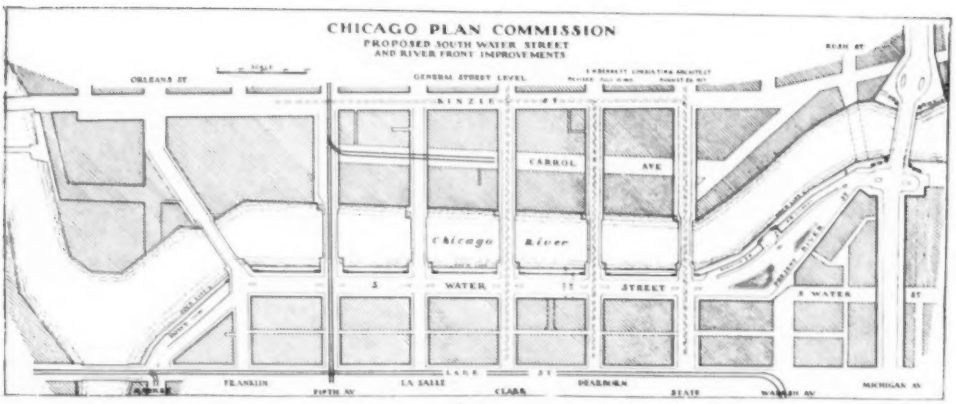

By EDWARD H BENNETT
*Consulting Architect to the Plan Commission*


THE Chicago Plan Commission began its work in 1909. Its first enterprises were Twelfth Street, now Roosevelt Road, and Michigan Avenue, and in the case of each of these works the river crossing was involved. This led at once to a study of the bridges and, subsequently, to the supervision architecturally by the Plan Commission of all bridges proposed for execution.

Collaboration was necessary with the Department of Bridges. At first this was rather difficult to obtain due to one cause or another, but after a year or more of painstaking work, an adjustment of the ideas of the Department Engineers and the Commission's architect and staff was brought about. Complete confidence reigned in the common purpose of the two groups for good and a very fine basis of collaboration was established.

The Chicago River runs west from Lake Michigan about one-half mile and then forks abruptly north and south. The main channel east and west, about 250 feet wide, and the south branch, about 200 feet, separate the loop business section from the surrounding territory and have cramped its growth. Bridges must open for water borne traffic, and the delay in opening and shutting the bridges must be reduced to the minimum by rapid operation and freedom from obstructions in the river. The center piers of old bridges have long ago been ordered out by the Government.

The first studies for a bridge at Michigan Avenue were made as a single deck bridge, many years ago. Later, plans of Michigan Avenue on a two level basis brought about the design of the present structure. The chief feature of the Michigan Avenue improvement is this two level plan, separating its heavy flow



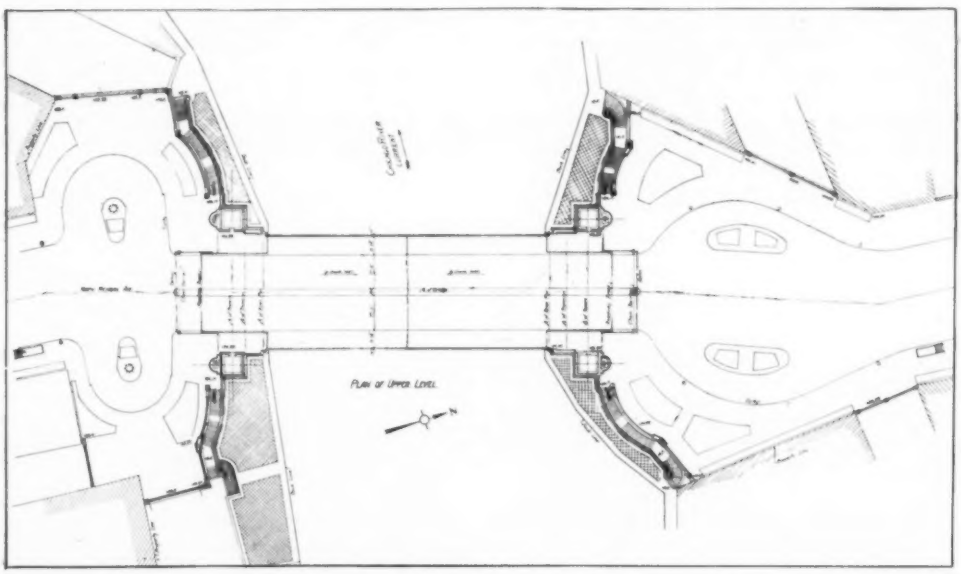

PLAN OF PROPOSED SOUTH WATER STREET AND RIVER FRONT IMPROVEMENTS IN CHICAGO, ILLINOIS.

of light traffic from the cross currents of trucking and other light east and west traffic.

The bridge first designed in 1910 was proposed by the author as it is now built with the steel truss including the arched chord. This was submitted to well known bridge engineers and approved, and it was then worked out by the engineers of the Bridge Department and our staff in collaboration.

The architecture of the approaches, abutments, lighting standards and houses then established has been from time to time revised and improved until the recent date of execution.

During this time a great number of bridges were designed and built. The type now known as the "hand-rail height" was evolved and progressively the bridge designs were improved. The steel work came in for its share of attention and, as a result of the collaboration mentioned, improvements in the arch




MICHIGAN AVENUE AND PINE STREET IMPROVEMENT, CHICAGO, ILLINOIS.

lines and the overhead truss lines were made.

An early good example was the Jackson Street Bridge. The Engineers of the Sanitary District collaborated with the author to the end that a clear deck type of bridge was built, having an unbroken arch below and suitably designed houses and lamp fixtures.

actual necessary structural depth of the truss, govern to a great extent the main lines of the structures.

Occasionally, as in the case of Jackson Street and in the two level Michigan Avenue Bridge, a clear deck is obtained. On the other hand, the curved overhead truss is sometimes and more generally necessary. Whenever possible this over-

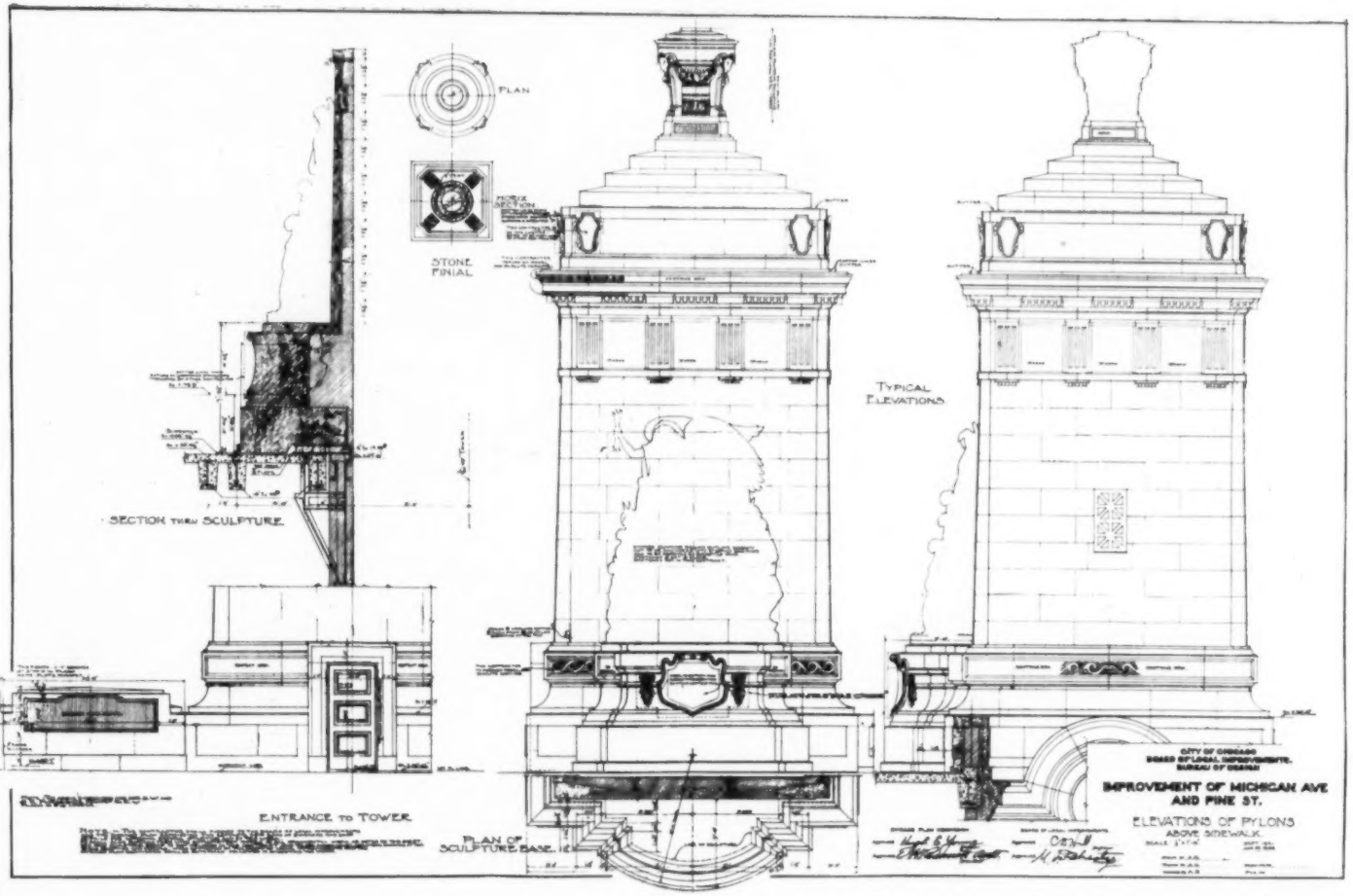
MICHIGAN AVENUE DOUBLE DECK BRIDGE AND APPROACHES.
Looking from the Northeast to the Loop District.

Sculptural groups are provided for and are to be placed on the bases shown attached to the pylons.

Several important practical considerations control the bridge designs in Chicago. The average ground level is 15 feet above the water level. The government requires a clearance of 16 feet below the bridge arches for 80 per cent. of the span; also ordinances require a clear channel when possible of 200 feet and also require that the bridges open. These requirements give rise to difficult problems in the approaches which, together with the clearance requirements and the

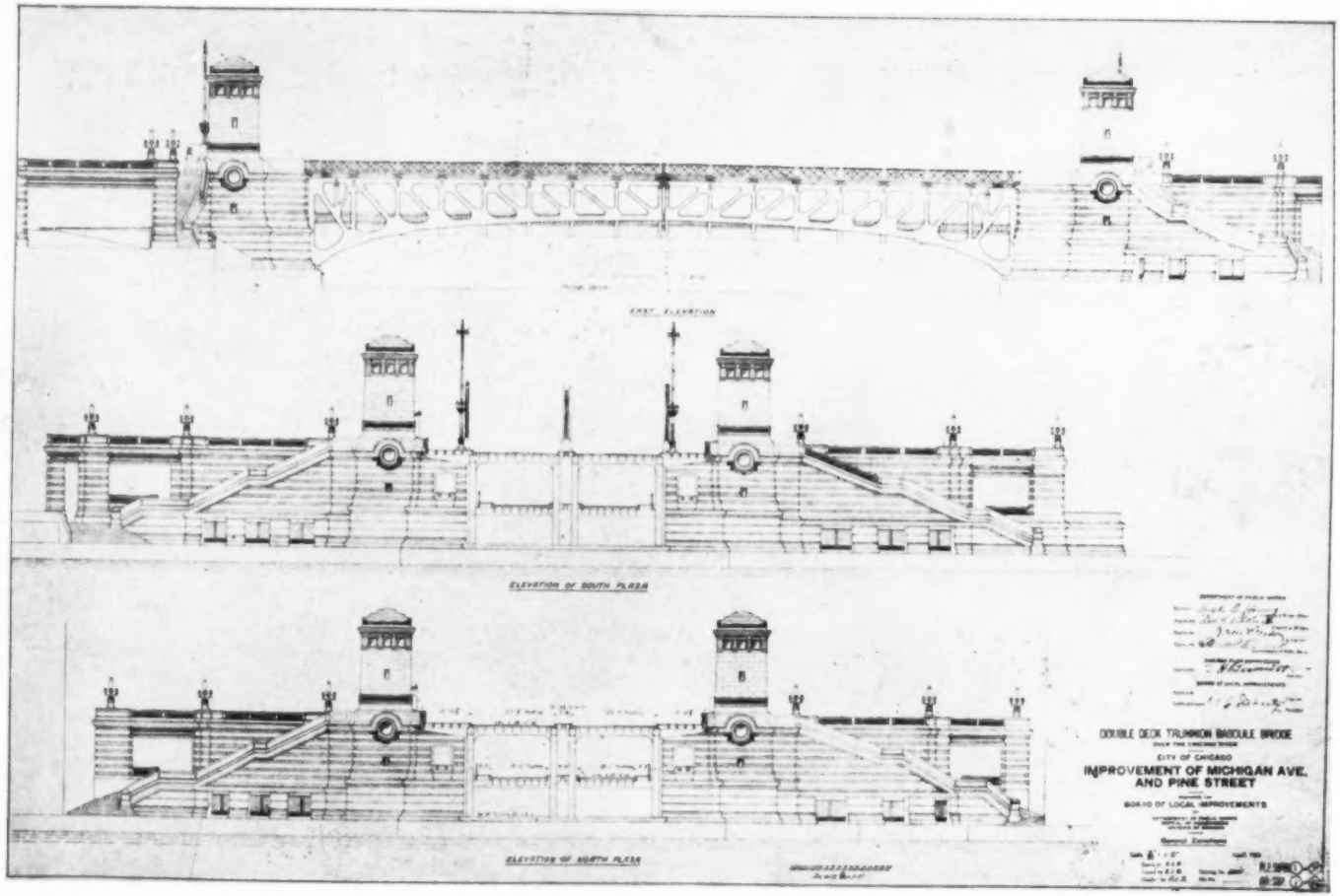
head truss is lowered to the "hand-rail height." This type is illustrated by the Madison Street Bridge; the curved overhead type by the Franklin, Orleans Street. The double deck bridges carrying the elevated lines have had their share of attention—the Lake Street and Wells Street Bridges are here shown.

In accordance with the Government requirement of removal of center piers a complete plan of bridge development was made by the Bridge Department some



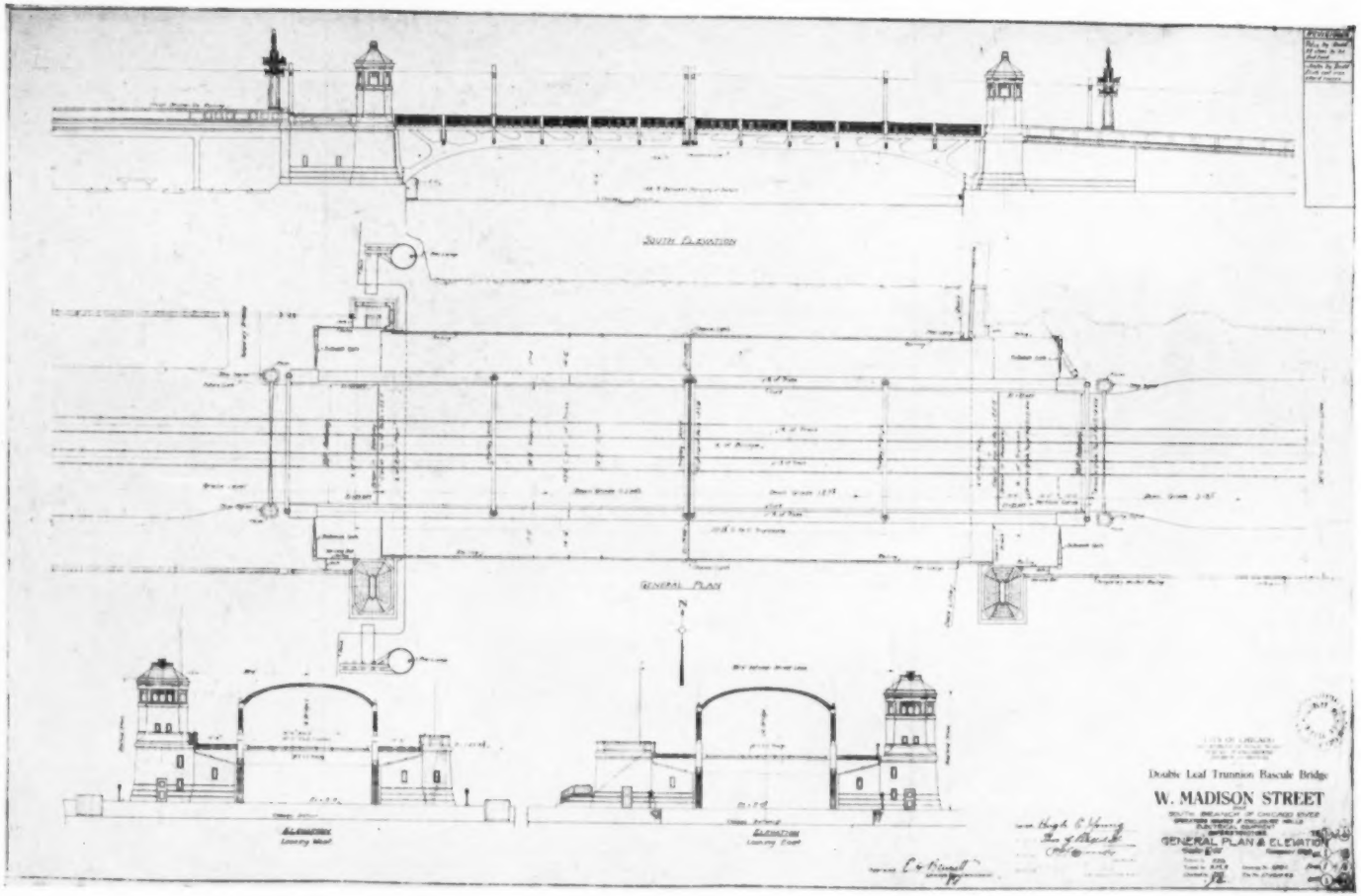

ELEVATIONS OF PYLONS—IMPROVEMENT OF MICHIGAN AVENUE AND PINE STREET, CHICAGO, ILLINOIS.

ONE OF THE ABUTMENTS FROM THE LOWER QUAY—MICHIGAN AVENUE BRIDGE—IMPROVEMENT OF MICHIGAN AVENUE AND PINE STREET, CHICAGO, ILL.


EAST ELEVATION
ELEVATION OF SOUTH PIER
ELEVATION OF NORTH PIER
DOUBLE DECK TRUNNION BASCULE BRIDGE
CITY OF CHICAGO
IMPROVEMENT OF MICHIGAN AVE. AND PINE STREET
BOARD OF LOCAL IMPROVEMENTS

DOUBLE DECK TRUNNION BASCULE BRIDGE OVER THE CHICAGO RIVER—IMPROVEMENT OF MICHIGAN AVENUE AND PINE STREET, CHICAGO, ILLINOIS.

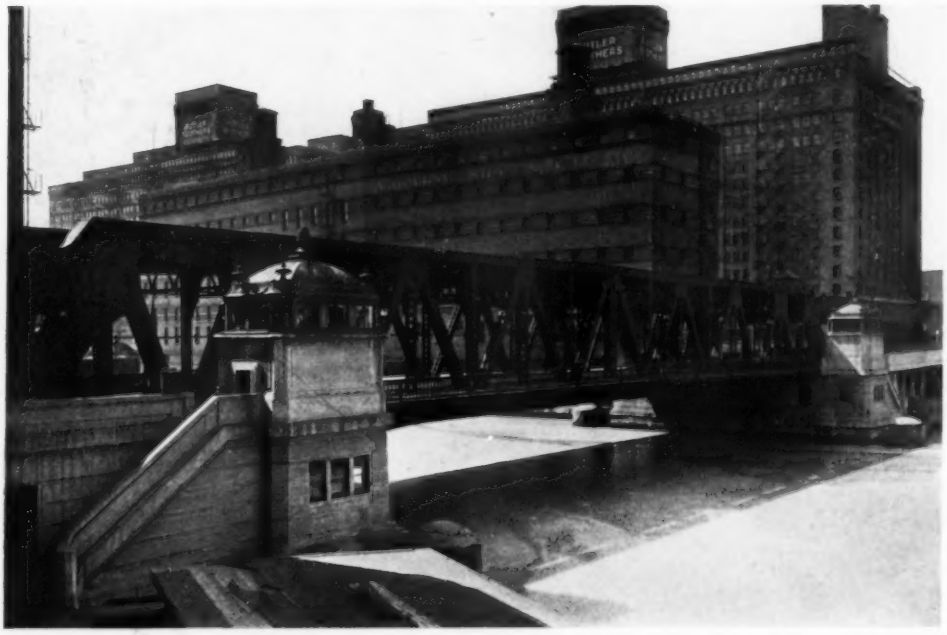
THE MICHIGAN AVENUE BRIDGE SHOWING THE TRUNNION BASCULE TYPE IN OPERATION—IMPROVEMENT OF MICHIGAN AVENUE, CHICAGO, ILLINOIS.




DOUBLE LEAF TRUNNION BASCULE BRIDGE AT WEST MADISON STREET, OVER THE SOUTH BRANCH OF THE CHICAGO RIVER, CHICAGO, ILLINOIS.

FRANKLIN STREET BRIDGE OVER THE CHICAGO RIVER — SOUTH WATER STREET AND RIVER FRONT IMPROVEMENTS, CHICAGO, ILLINOIS.

WELLS STREET DOUBLE DECK BRIDGE, CHICAGO, ILLINOIS.



LAKE STREET DOUBLE DECK BASCULE BRIDGE, CHICAGO, ILLINOIS.
Two examples of structures carrying the elevated road on the upper and general traffic on the lower level.

few years ago, establishing practically uniform grades for the bridges on the main and south branches of the river. This fitted in well with the Plan Commission project of the development of South Water Street—a two level plan, the upper level corresponding to the bridge level. The design provides for the complete architectural treatment of the waterfront, the bridge abutments and the operators' houses in connection with them.

A policy of fixed bridges is advocated by many in Chicago in the interest of traffic and general facilities for business. Such a policy would bring about some important changes in the design of the structure of the bridges and would lend itself to a far better looking general appearance of the River.

Numerous bridges in the outlying districts have been designed by the Plan Commission; being of a fixed type they present much less difficult problems than those in the center of the city.

With the Michigan Avenue Bridge and approaches a more sumptuous treatment of the river was begun than was contemplated in earlier days. This has been carried out in the South Water Street design, and the embellishment of the entire river front, it is hoped, will receive considerable impetus by the provision now made on the Michigan Avenue Bridge for sculptural groups on the four pylons. The subjects proposed are commemorative of various events in Chicago's history, ideally treated.

The Plan Commission has received in later years the support of the Planning Committee of the American Institute of Architects and the Art Commission.

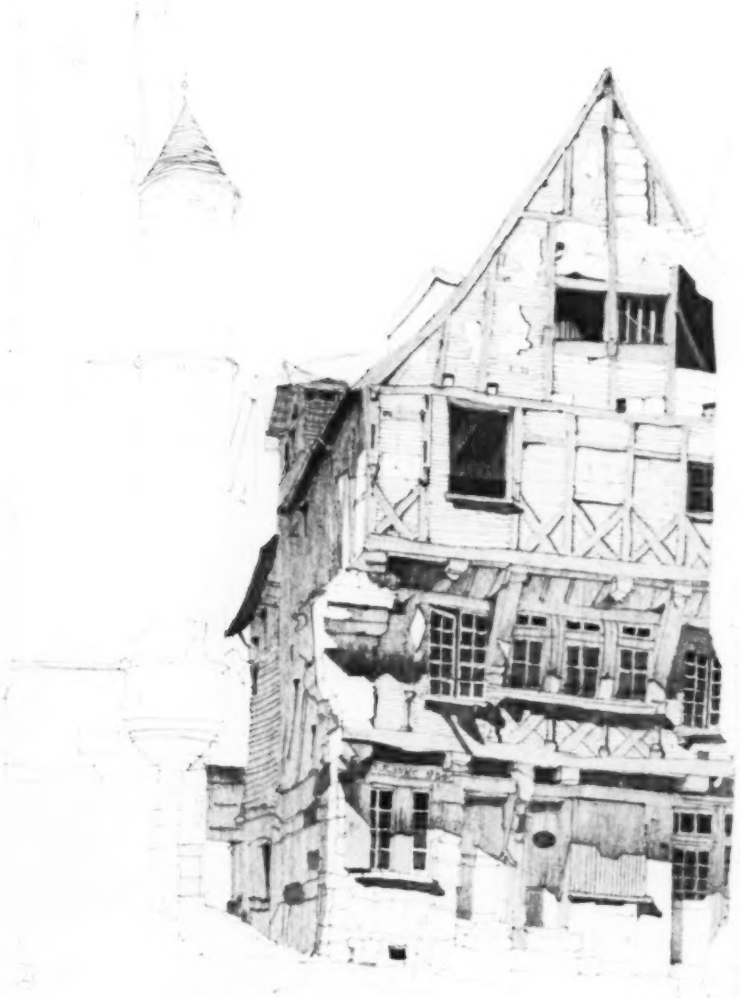
JACKSON BOULEVARD BRIDGE OVER THE CHICAGO RIVER, CHICAGO, ILL.

A CORNER IN POITIERS.

# SKETCHES OF A WANDERING ARCHITECT IN FRANCE

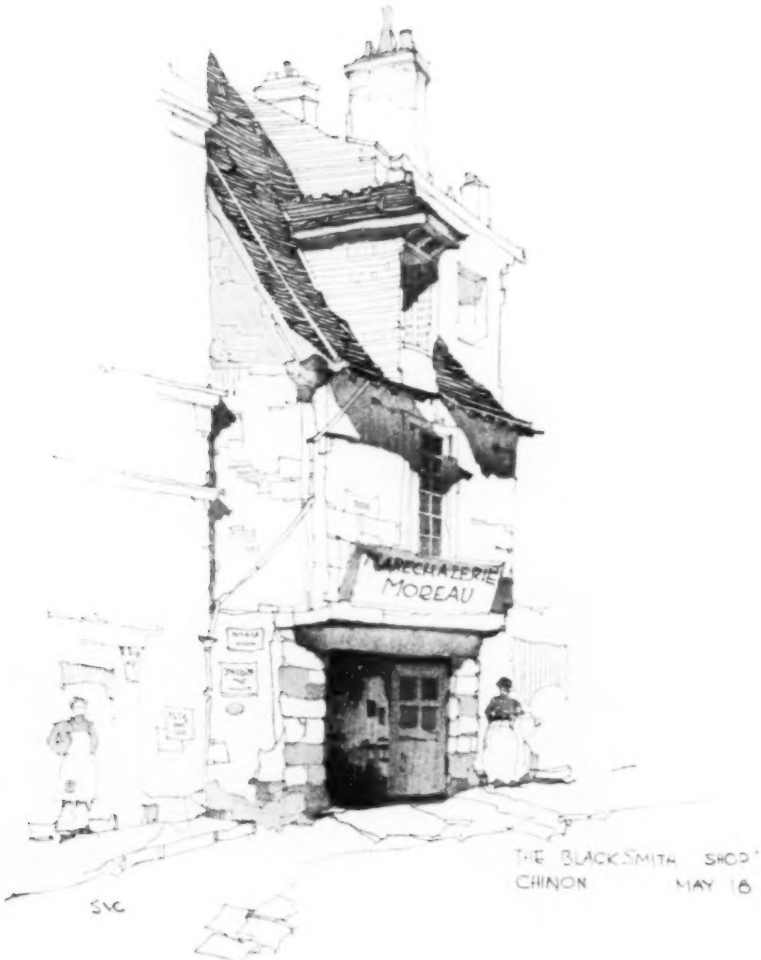
*Pencil Drawings by*

SAMUEL CHAMBERLAIN



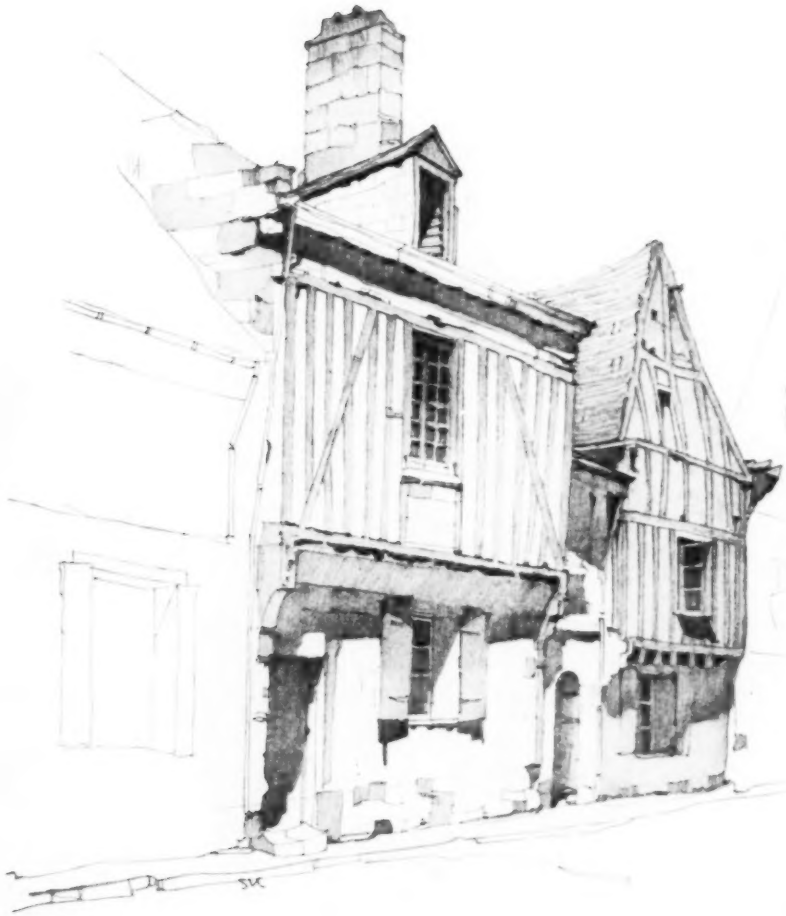
CHINON'S FINEST HALF-TIMBERED HOUSE.

THE CHÂTEAU OF CHAUMONT
ACROSS THE RIVER.




THE BLACKSMITH
S H O P. CHINON.

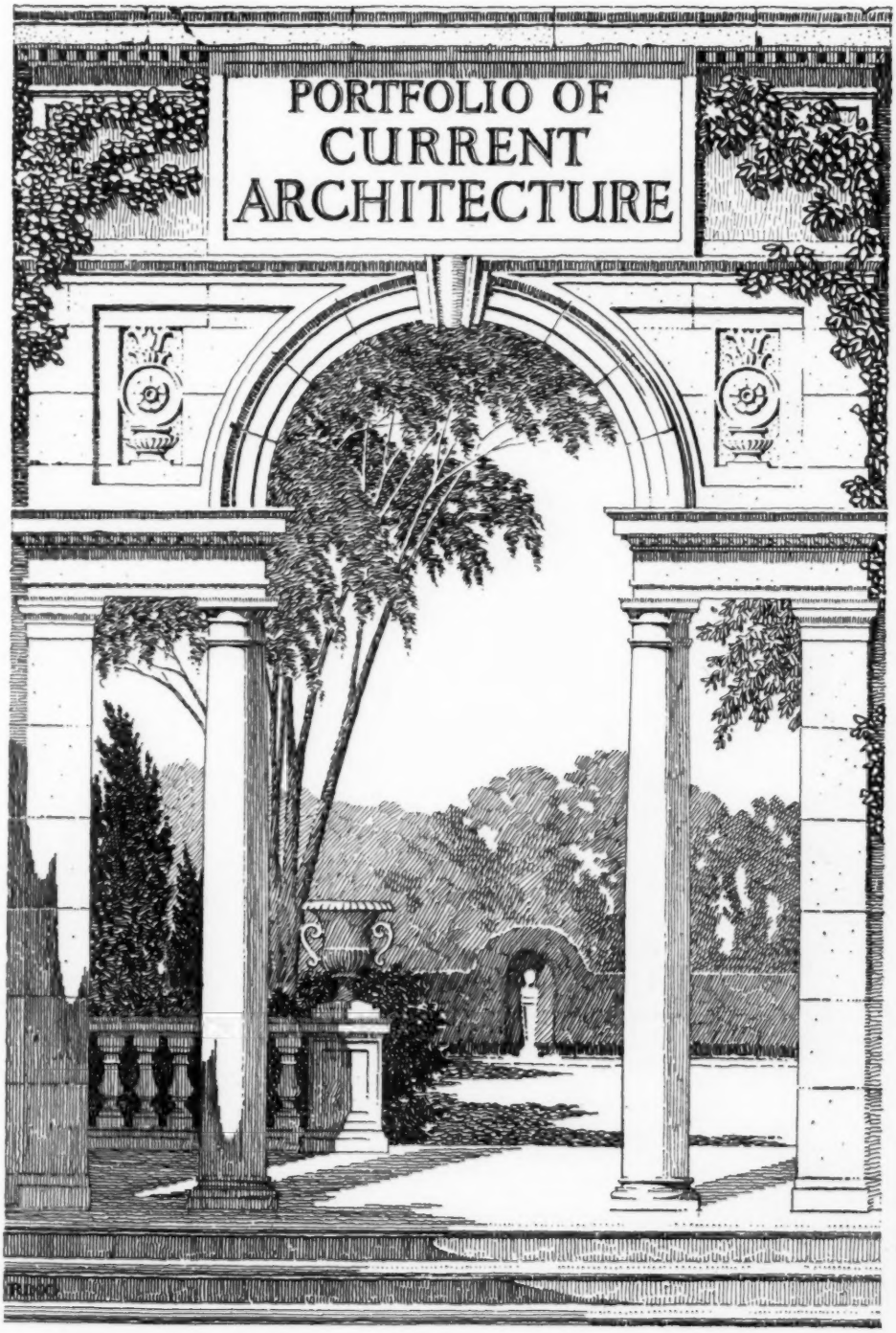
OLD HOUSE
IN BEAULIEU.

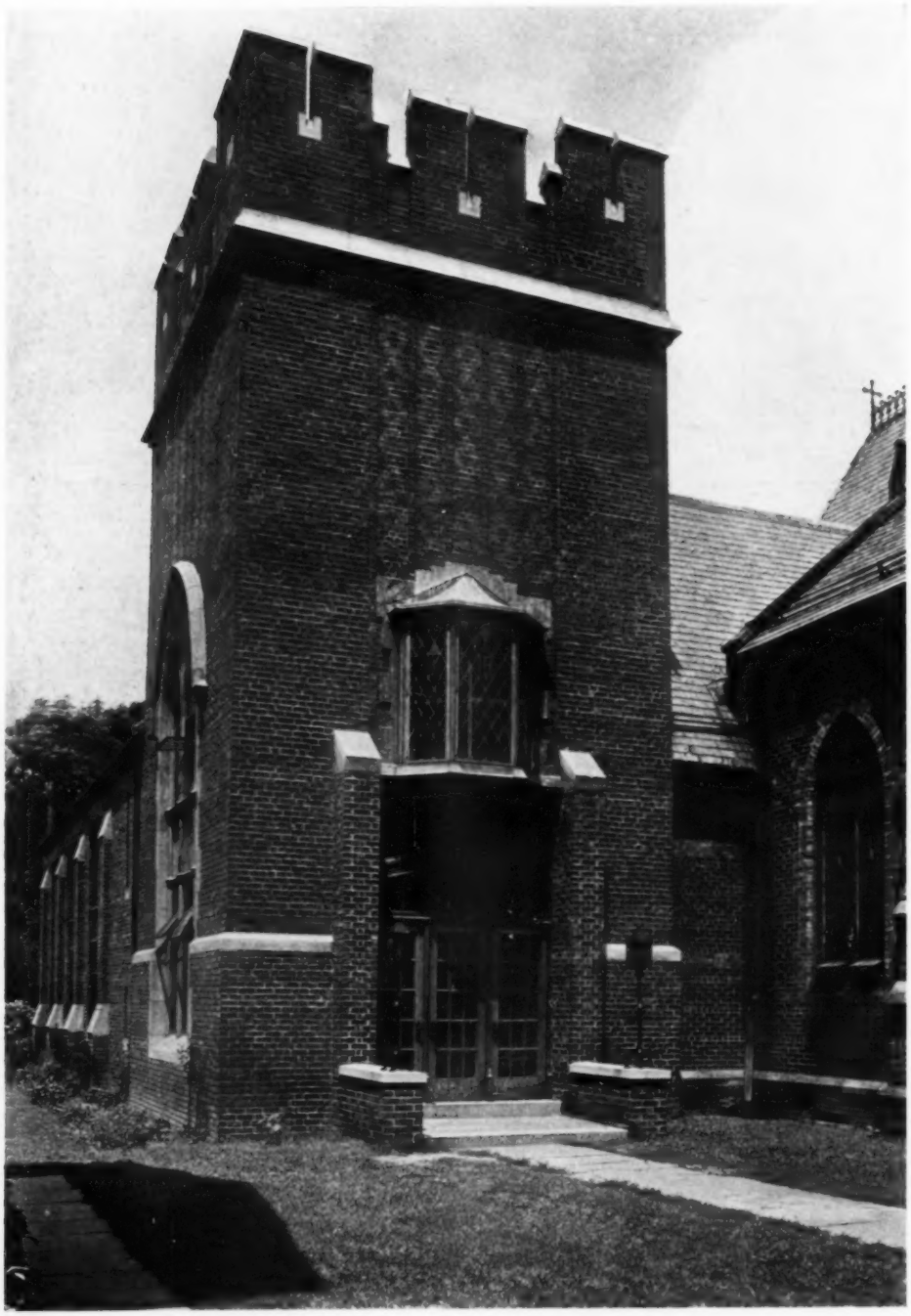


OLD HALF TIMBERS
AT BEAULIEU.

OLD GATEWAY. RUE VOLTAIRE, CHINON.

MONTRICHARD.


PORTFOLIO OF
CURRENT
ARCHITECTURE



TOWER—CHRIST CHURCH PARISH HOUSE, HACKENSACK, N. J.
WESLEY SHERWOOD BESSELL, ARCHITECT.

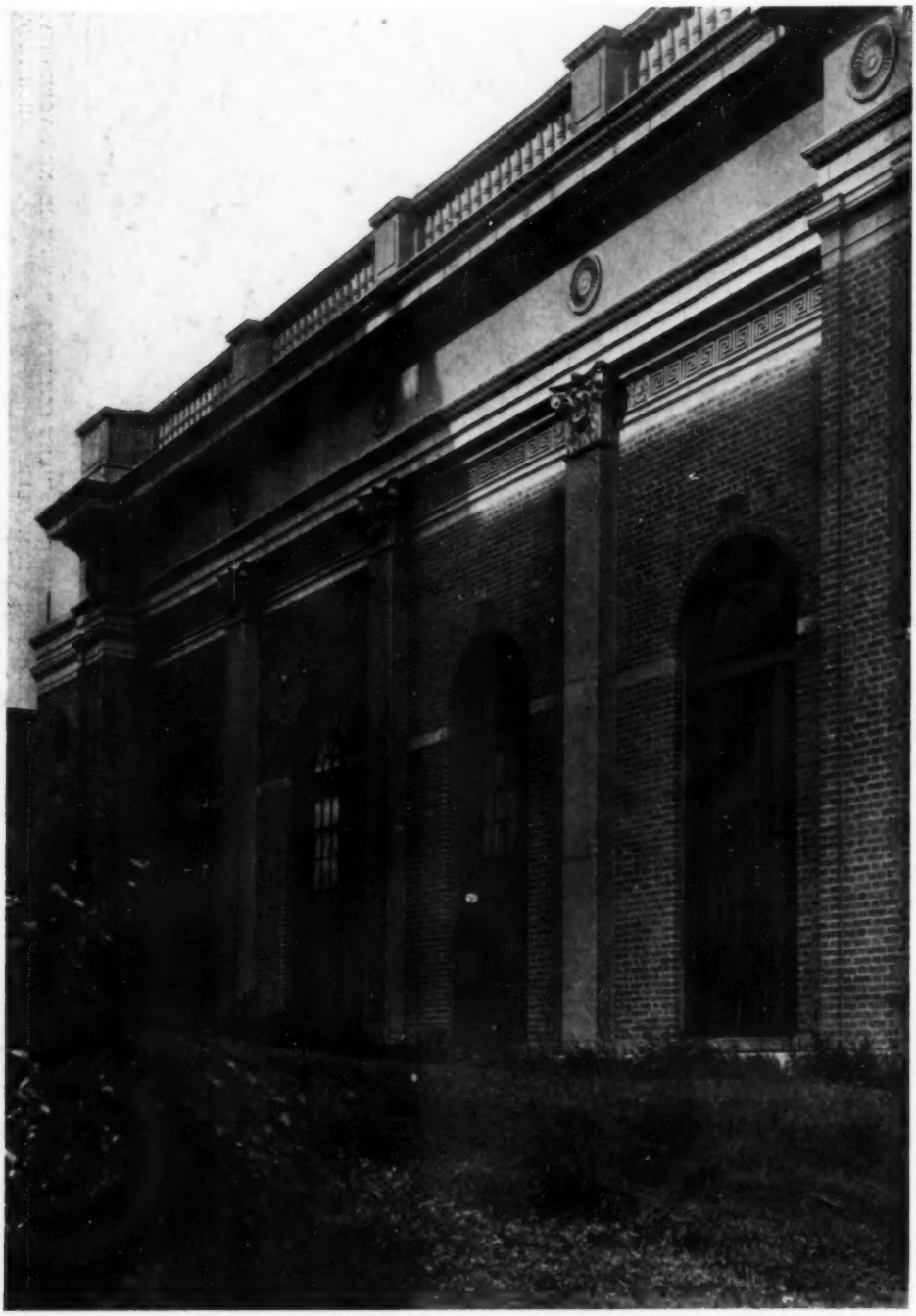
ENTRANCE DETAIL—CHRIST CHURCH PARISH HOUSE, HACKENSACK, N. J.
WESLEY SHERWOOD BESSELL, ARCHITECT.

INTERIOR OF CHRIST CHURCH PARISH HOUSE, HACKENSACK, N. J. WESLEY S. BESSELL, ARCHITECT.

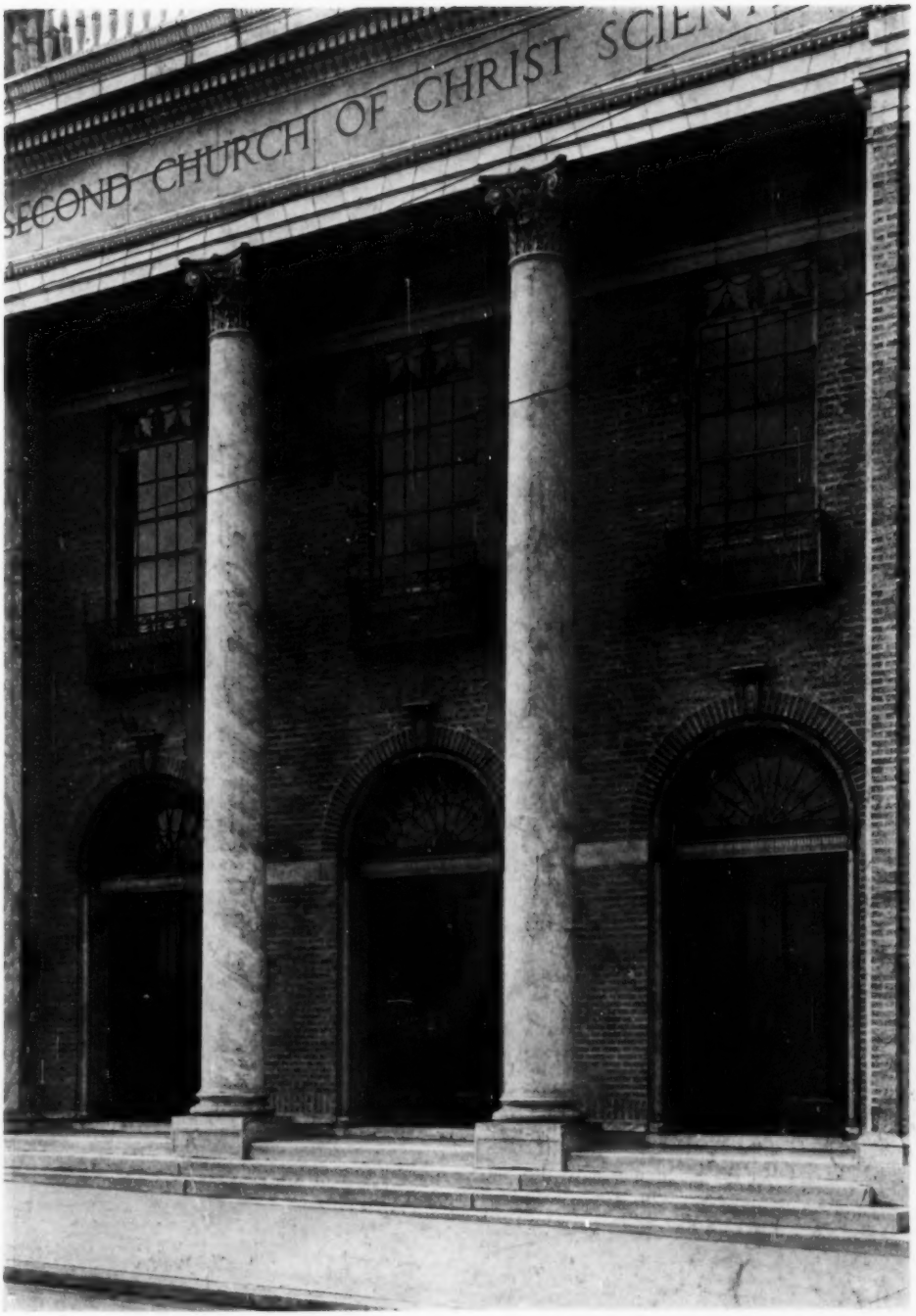
DETAIL OF FAÇADE—SOUTHWESTERN HIGH SCHOOL, DETROIT, MICHIGAN.
MALCOMSON, HIGGINBOTHAM & PALMER, ARCHITECTS.

SOUTHWESTERN HIGH SCHOOL, DETROIT, MICHIGAN.
MALCOMSON, HIGGINBOTHAM & PALMER, ARCHITECTS.

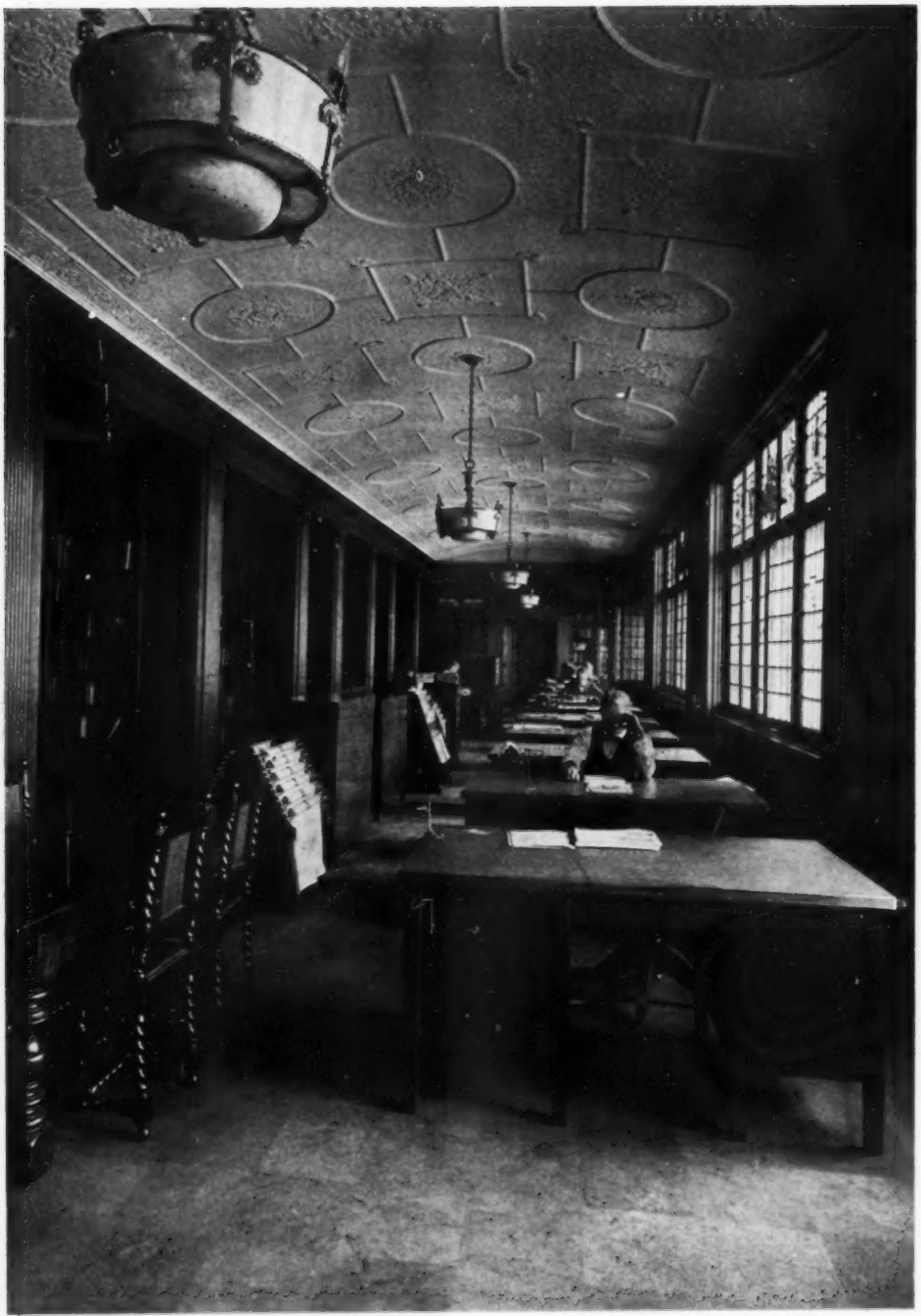
SECOND CHURCH OF CHRIST SCIENTIST, BAY RIDGE, NEW YORK CITY.
BERNHARDT E. MULLER. ARCHITECT.



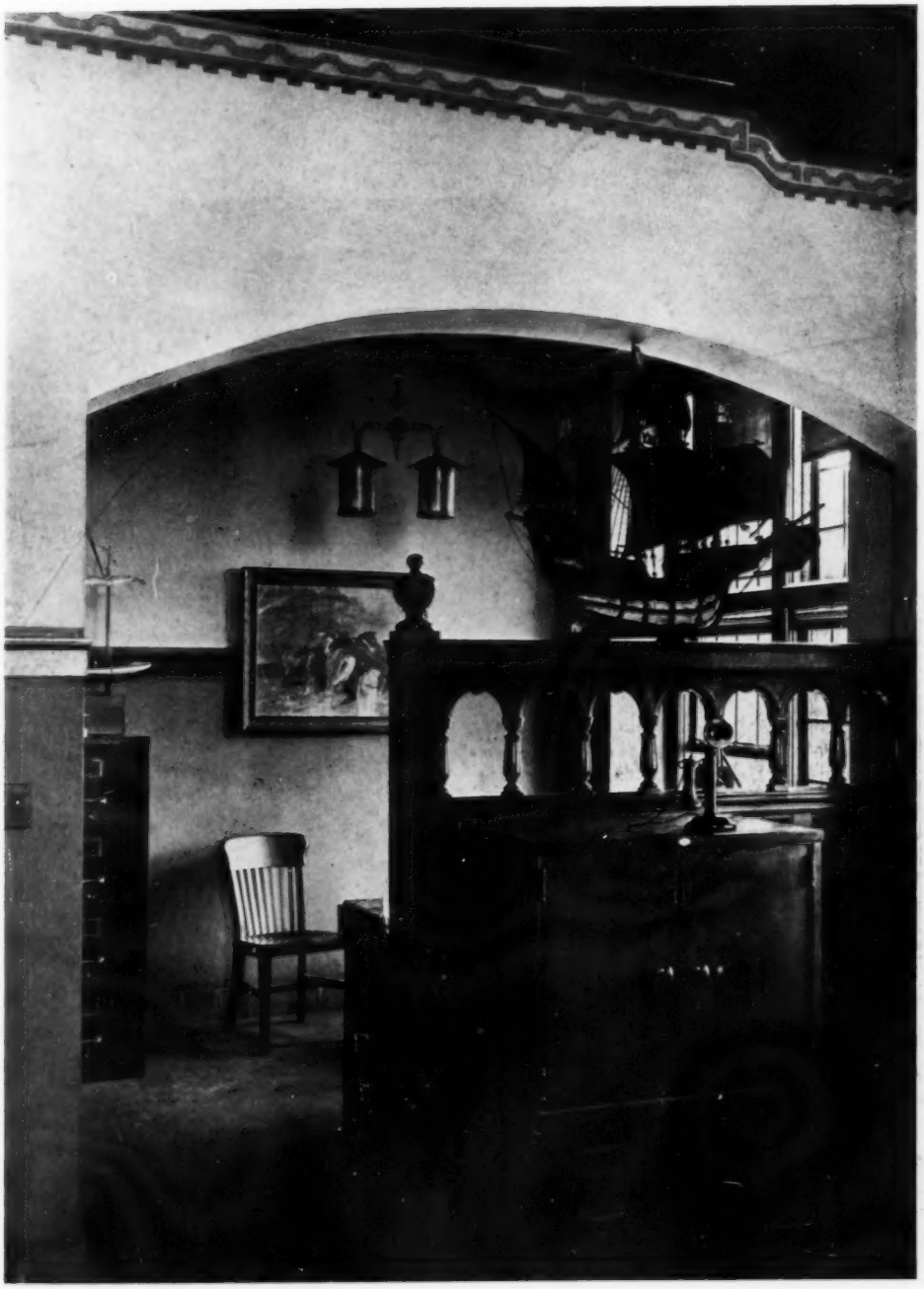
SIDE DETAIL—SECOND CHURCH OF CHRIST SCIENTIST, BAY RIDGE, NEW YORK CITY. BERNHARDT E. MULLER, ARCHITECT.




DETAIL OF FAÇADE — SECOND CHURCH OF CHRIST SCIENTIST, BAY RIDGE, NEW YORK CITY. BERNHARDT E. MULLER, ARCHITECT.



LIBRARY — "EVENING NEWS" BUILDING,
DETROIT, MICH. ALBERT KAHN, ARCHITECT.



CORNER IN EDITORIAL ROOM—"EVENING NEWS" BUILDING, DETROIT, MICHIGAN. ALBERT KAHN, ARCHITECT.

DETAIL OF LIBRARY—"EVENING NEWS" BUILDING,
DETROIT, MICHIGAN. ALBERT KAHN, ARCHITECT.

EDITORIAL ROOM—"EVENING NEWS" BUILDING, DETROIT, MICHIGAN. ALBERT KAHN, ARCHITECT.

ENTRANCE—COUNTRY HOUSE OF E. F. HUTTON, ESQ., ROSLYN, LONG ISLAND. CHARLES M. HART, ARCHITECT.

WEST SIDE—COUNTRY HOUSE OF E. F. HUTTON, ESQ., ROSLYN, LONG ISLAND. CHARLES M. HART, ARCHITECT.

GUEST AND SERVICE WINGS—COUNTRY HOUSE OF E. F. HUTTON, ESQ.,
ROSLYN, LONG ISLAND. CHARLES M. HART, ARCHITECT.

ACUTE DISEASE HOSPITAL, ELGIN, ILL.
EDGAR MARTIN, ARCHITECT.

CHAMBER OF COMMERCE BUILDING, BROOKLYN, N. Y.
STARRETT & VAN VLECK, ARCHITECTS.

# A NEW EMPHASIS IN SKYSCRAPER DESIGN

*Exemplified in the Recent Work of Starrett & Van Vleck*

*By*

JOHN TAYLOR BOYD, Jr.

TO the world at large the American skyscraper is the one supreme feature of modern architecture. Whatever architects themselves may think, the citizens in the streets are thrilled by the lofty towers, rising into the dazzling sunlight above busy cities. In the eyes of the people the skyscrapers seem inspired creations of the twentieth century—fit symbols of the modern worship of the gigantic.

Nor is this admiration mere American exaggeration. Europeans, of the best type, when they visit our shores and behold the skyline of New York come into view, surpass our own people in praise of the tall buildings. They find no terms too extravagant to express their wonderment. "The supreme gift of the American architect to his art; a colossal shrine raised to the modern god Economics; true child of the American genius!" they say.

All this enthusiasm may seem strange to the American architect, but really he should pay it the deepest respect. For here, in this admiration, this deep feeling, this intense interest of the world, shared by all ranks and encouraged by the best—here is his finest opportunity. It is such an opportunity as comes to architecture only a few times in history. For when the world demands of the architect that he dramatize his age in one majestic symbol, it has given him all that he could ask. Through just such a situation the greatest achievements of architecture were produced—the pyramid, the temple, the Latin city, the cathedral.

When the world beckons, why should the architect hang back? Does he think that the world's enthusiasm is exaggerated? Does it seem to him that tall building architecture is not worthy of its high reputation? If the public interest is not wholly justified, that is not the fault of the public, but rather of the architect himself for not having produced monuments more worthy of the popular zeal. In any case the world cannot be expected to draw fine distinctions as to the quality of architecture. That is the architect's task. Indeed one may doubt whether, in any age, the public has ever been able to perceive more than a vague ideal in art, and whether it would not have seized upon any glimmering, any hint of achievement which the artist had realized and, reading into it more than was there, have proclaimed the artist's work to be a success.

If, therefore, the skyscraper is not yet worthy of the public's admiration, it is the duty of the architect to make it so. He should view the perfecting of tall building architecture as the next great task confronting American architecture.

In accomplishing this task of making the skyscraper worthy of its name, a necessary step is to center the attention of architectural opinion on skyscraper design, as, for example, it has been centered on the country house, and to agree upon the best standards. That done, the next object should be to see how far these standards, or models, can be improved. If we study tall building architecture in this spirit, we shall, I think, discover that the recent buildings of Starrett & Van Vleck are most significant.

Whenever, in the course of architecture, a new kind of building is created, a long experimenting is necessary before the true type appears. This common happening in the history of architecture is too often overlooked in modern days when, sometimes, people think to create an art in a day. New types are never brought quickly to perfection, still less by any one man, unless we except Brunelleschi, the Shakespeare of architecture,

NO. 19 EAST FORTIETH STREET, NEW YORK CITY.
STARRETT & VAN VLECK, ARCHITECTS.

who almost by himself ushered in the Renaissance style. Indeed, one of the most impressive facts in architectural history is the thousand years of effort required to develop the side elevation of the early Christian basilica into the perfection of the thirteenth century cathedral. What a long, hard road those old master-builders plodded to their goal, with how many a beautiful monument, full of promise, erected along the way!

When one thinks of their historic toil, thirty years of struggle with the skyscraper does not seem long; and, indeed, it is to the credit of American architects that they have done so well with so difficult a type.

The beginnings of tall building design go back to about 1890, when, in Chicago, the first steel skyscraper was erected. Economically, it met a need, and straightway architects sought to give it appropriate form. Then, architecturally speaking, the first skyscrapers appeared.

These first attempts were chiefly dull copies of traditional buildings, in that the steel structures were made to resemble solid masonry construction. In designing them, the architects borrowed forms and motives, almost unchanged, from low horizonal buildings. It may be remarked that this early custom has not entirely disappeared today.

But soon architects came to see in the skyscraper a new problem—that of a building having a striking individuality of its own, requiring of the architect a new inspiration, a new conception of design, new motives, or else old motives used in a new way; an entirely new scale and a new sense of detail were needed. Though easy to perceive, this principle has proved so difficult to apply in design that only now does it seem on the point of being mastered.

It may be worth while to note, in more technical detail, how the vocabulary of skyscraper design has developed. In the first attempts to break the bonds of old formulas which had been developed for entirely different, horizontal types, too much was made of the comparison between the skyscraper and the classic column, with its triple division into base, shaft and capital. This conception, although excellent as a suggestion, as an idea, too soon became a rigid formula and was, and still is, an obstacle to direct imaginative design.

Its evil effects should be more clearly understood. The trouble with the column formula is that its effect is to plaster the upper stories of tall buildings with decorations which are too large in scale and which, because of the necessary flatness of the big wall, appear almost as thin as paper. The designer combines several stories into a monumental motive in the grand style, either of columns, pilasters, arches or a colossal Renaissance cornice, perhaps, five stories in height, a city block in length, and scarcely five inches in projection. This seems a wrong use of classic design. Such monumental motives were never meant to be so flat; they were developed in classic architecture in full solidity, with the same bold geometrical shape in the third dimension as in the other two. As used in skyscrapers they are paper architecture.

But this use of motives in the grand style on skyscrapers has a graver defect. That is the falsity of their scale. Right here is the failure of much tall building architecture. These crowning motives have a scale contrary to the true scale of the skyscraper, which is established by many tiers of low stories, with their small windows. The scale of the tall office building is thus almost domestic, rather than monumental, in character. In any case, the low stories and small windows make the skyscraper inherently a pattern of rather small elements. This pattern is distorted by forcing big geometrical shapes upon it.

The secret of skyscraper architecture would seem to lie in its small scale. This statement should surprise no one; scale is more important in modern architecture than it has ever been in the past, for now that buildings are more diversified than ever before differences in scale grow greater; every new modern type of building has its own peculiar scale, which the architect must know and express if his design is to be sound.

In an article on shop fronts (ARCHITECTURAL RECORD, June, 1921), I pointed out the peculiar scale of the city shop

THE BERKELEY BUILDING—WEST FORTY-FOURTH STREET, NEW YORK CITY. STARRETT & VAN VLECK, ARCHITECTS.

front, how New York architects had discovered it, how in particular McKim, Mead & White in the five-story shop building at 620 Fifth Avenue had created one of the finest masterpieces in all modern art. Similarly, the scale of tall buildings needs a true expression.

Examples of the clash of scales in skyscraper design are frequent. If big Renaissance motives, especially the orders, are used, the windows appear dwarfed until the huge walls are cliffs spotted with small holes, like the pigeon holes in an old dove-cote. As a result, the broad expanse of the wall surface is lost. It becomes disturbed and spotty.

It is this dwarfing of the window scale which explains the fact that tall buildings often do not look their height; this fact and the one to which I have alluded before, the practice of increasing the scale of the details towards the upper stories in order to allow them to be seen distinctly from the street. The Metropolitan Life Insurance Co.'s tower is a case in point. This device robs the structure of the splendid and varying effect characteristic of the finest historic towers, in which by refining the treatment towards the top the architects gave them an air of charm and suggestion, of what Ruskin called mystery in painting, which is supreme art and which makes them soar into the skies.

Not only does this custom of using monumental motives create false scale, but it seems to multiply the difficulties in design. It causes needless complication in the tiers of stories below the crowning motive, dividing them arbitrarily in the horizontal dimension into a center mass with flanking pavilions. This motive is borrowed from classic architecture, where it usually involves a receding of surfaces by at least several feet, in order to obtain the solidity of the third dimension in the big geometrical shapes and also to furnish the fine relief of deep shadows cast by the advanced planes on the center mass.

Dividing the big wall into long breaks or verticals also creates complications because the designer must tie the elaborate top part to the plain wall mass below and also harmonize the intersection of vertical and horizontal elements.

The foregoing arguments may lead the reader to believe that Gothic is the style for skyscrapers. But I cannot see how the Gothic used in skyscrapers is more successful than Renaissance. To divide the vast wall into tall slits, or strips, or "buttresses," thereby stringing the windows in hanging rows of beads, seems to me to distort the true scale of these windows as much as the simpler Renaissance scheme, in which the big geometric crowning motive displays them as a pattern of dots. Gothic, likewise, results in extreme intricacy of verticals and horizontals and creates difficulties of design at the points of intersection of horizontals and verticals.

The proof of this last truth is the Woolworth Tower. The design of the Woolworth depends on extreme elaboration for its effect, which one must admit is attained with amazing technical skill; yet right here is the weakness of the Gothic type. All the various attempts which have been made by architects to simplify this elaboration, so the style may be fitted to simpler buildings, have not been very successful. In the simpler Gothic types the buildings are apt to be crude in shape and line and hard in detail. This is because the intersections of vertical with horizontal lines are faulty and abrupt.

This weakness of Gothic should be more generally realized. It is of no value to architecture to create a type of design which seems to imply elaboration. If it is sound, an architectural style should be free and flexible enough to produce beautiful architecture in the simplest and most severely plain buildings. The majority of buildings in any age must of necessity be rather simple. The old true Gothic was thus flexible, because it produced at one extreme the beautiful intricacy of Rheims and at the other, the beautiful simplicity of the yeoman's cottage. One may conclude, therefore, that the so-called Gothic style of skyscraper is a falsity, that it has no real vitality. It presents a parallel to the Romanesque of H. H. Richardson in the eighties and nineties, in which, through

the transcendent ability of one man, for a brief period, the dead came to life.

In fact, one should realize, that strictly speaking, the Woolworth and similar elaborate buildings are not office buildings at all. The huge cost of their ornament is charged to the advertising account of a prosperous company to which the rental income is not the sole measure of their success.

But what of that much discussed principle: the effect of the steel structure on the architecture of the skyscraper? What, indeed, of "structural logic"? Does not structural logic imply the Gothic type?

I have hitherto avoided discussion of structural logic, as something less important than design. Although a good principle in itself, when structural logic is pushed too far it intellectualizes architecture to a point where it ceases to be art. Architecture is a balance of many conflicting principles, of which structural logic is only one. It should therefore be kept in its proper place.

In spite of what purists say, there is no obligation in architecture to accent ugly structure. As to the uncouth character of the checker-board pattern of the steel, there can be no question, nor does any obligation rest on the architect to accent the vertical columns, particularly when this injures the scale of the windows. Scale, as I have tried to point out, has its truth as well as structure has. After all, scale emphasizes the character of a building as well as structure, and the two should not be allowed to conflict in design.

An architect goes wrong if he exaggerates the structure until it contradicts the building's intrinsic scale. In that case he has set one principle fighting another, and he has lost the balance of art.

Indeed, to come to the point, I believe that the real truth, both as concerns scale and structural logic, is that in essence the skyscraper is a vast, thin surface of masonry and glass, a screen stretched over a steel frame, thereby creating a building of many tiers of low stories, containing ranks of rather small windows, almost domestic in size—a hive where people work in offices. The architecture most suited to it is a simple, frank treatment of the skin of masonry and glass, in small elements, preserving its almost domestic scale, with perhaps a suggestion of the steel work, if that suggestion is beautiful.

Such a direct method of design should satisfy the demands of structural logic. Even if we consult "nature," as seems to be the vogue in discussions of this kind, do we find the cat less beautiful than the crab because the cat's skeleton is less evident in its design? Without pursuing the point further, I believe that we may conclude that Gothic skyscrapers have merit only in so far as they are beautiful in form and true in scale, not because they are more logical.

When all this struggle to find the true skyscraper type is considered, difficulty with scale and style, the enormous effort to seize the true character of the building, it seems clear that tall building architecture is still in the developmental or experimental stage. The traditions of architecture have not yet been adapted to a point where the average designer works directly and freely on the average building. Skyscraper architecture is still too rigid, too much bound by formula and recipe, too heavily fettered often, by traditional motives of design and usually by the traditional details which are employed to carry out the motives. The imagination of the architect is imprisoned in rigid form and cannot soar.

To break the chains which bind the architect in designing skyscrapers: this is the task which Starrett & Van Vleck seem to have tackled, and they seem to have in large measure succeeded, particularly in three buildings, namely 8 West Fortieth Street, 19 East Fortieth Street, both in the Borough of Manhattan, New York City, and the Chamber of Commerce Building, near the waterfront of Brooklyn.

The more we study these buildings in their situation, the more impressive they appear. They are the essence of the tall office building, as they rise, beautiful masses of splendid outline, imaginative in pattern, exquisite in scale, beautiful in form and harmony of color, the colors light, clear and sparkling, and perfectly keyed to the sunlight. They are bold and

UPPER STORIES OF BUILDING AT 19 EAST FORTIETH STREET, NEW YORK CITY. STARRETT & VAN VLECK, ARCHITECTS.

NO 8 WEST FORTIETH STREET, NEW YORK CITY.
STARRETT & VAN VLECK, ARCHITECTS.

No. 8 WEST FORTIETH STREET, NEW YORK CITY.
Starrett and Van Vleck, Architects.

original architecture. The unity and consistency of design is remarkable, and in consequence the buildings grow more impressive each time one sees them.

If one studies their design, one finds that much of this unity is due to the splendid breadth of the wall surfaces. The architects have honestly emphasized the tiers of office floors, the underlying motive of the skyscraper. They have not feared to make the windows large, nor to satisfy completely the practical demand for plenty of light; nor have they made much attempt to group the windows; in fact, in the building across the street from the Public Library, the windows are as simply treated as they well could be. Such a large use of glass is the opposite of that practice of dwarfing the windows to which I have alluded above. The success here is due to a fine combination of color and to the excellent scale of the small window panes. The color of the brick wall is a light tan, which so harmonizes with the color of the window opening that the wall sur-

NATIONAL ASSOCIATION BUILDING, WEST FORTY-THIRD STREET, NEW YORK CITY. STARRETT & VAN VLECK, ARCHITECTS.

faces and windows tend to merge in a broad pattern of tiny tones, not spotty, but commingled as in a tapestry. Such imaginative play of color lifts them above the mere architecture of form.

That the effect is due to the light colored brick and to the small window panes is proven in two other of their buildings. One is the Berkeley Building on Forty-fourth Street, the walls of which are dark red brick. There the glass stands out too much from the wall. The other is the National Association Building on Forty-third Street, in which the architects were forced to use sash without muntins, because at the time it was built the disturbed conditions in the glass trade made small panes difficult to obtain. In this building also, the wall has not the scale of the three in question.

This combining of the brick and glass of the skyscraper wall into one broad field of color is the foundation of the success of Starrett & Van Vleck's design. It proves that they have discovered the true skyscraper scale. But even this is not the whole of their achievement. Instead of nullifying the fine character of the wall by applying an alien scale of monumental details to the design, they have emphasized it by using details in small elements, of stone belt courses, cornices, and the like, which are in keeping with the scale of the wall and which harmonize with the light tone of the brick. Being comparatively small in size, these details fit in perfectly with the tapestry pattern of the big walls. And they have a still further merit. Although the decoration is concentrated more at the top than along the rest of the mass, there is at the top no overemphasis of large scale motives imitating the effect of a column capital or of a cornice, which effect makes too sharp and arbitrary a break in the window tiers. Also, since the forms are small in scale, and since they are detailed with fine sparkle of ornament and accent of mouldings, they have not that excessive projection which destroys the effect of lightness of the walls and which, through exaggeration of detail, makes the tower lose height. The fineness of the detail yields just that slight vagueness of form to the top necessary to gain the effect of mystery which makes the architecture more imaginative, more poetic.

As to specific points of excellence of the three buildings, Starrett & Van Vleck have given each a distinct individuality within the type. No. 8 West Fortieth Street is splendidly robust and simple. The old idea of a crowning feature appears as only a suggestion, although it is sufficient; and the designers have not hesitated to run a slight horizontal belt course at every other story. As a detail, the corners are slightly rounded, giving a necessary alleviation to the outline. The one defect is the bluntness of the chimney on the east. The perfection of scale and the delicacy and fineness of the elements only serve to bring out the bold towerlike mass.

No. 19 East Fortieth Street has more richness, particularly of color, more sparkle and vivacity, with a splendid silhouette. One of its most interesting features is the expression, in low relief, of the verticals and horizontals, the "structural logic" of the steel skeleton. The effect actually is more noticeable than the photograph shows.

The Chamber of Commerce building is as fine as any of the three. It combines the bold outline of No. 8 West Fortieth Street with the color and life of No. 19 East Fortieth Street. It stands out splendidly against the blue sky, near the Brooklyn waterfront, above the docks, where it attracted my attention when first I saw it from the top of a Wall Street tower, nearly two miles away. The scale of that waterfront is vast, indeed, with docks, warehouses, bridges and ocean ships, and we could not put a building to a severer test than to ask it to hold its own in such surroundings. Yet it passes the test triumphantly and gives proof of that attribute which the world seeks in skyscrapers, the expression of majesty and power.

In brief, Starrett & Van Vleck have pictured the skyscraper wall as a harmonious pattern of color in slightly varying tones of brick, glass and stone, and light tile roof—even the soft orange colored awnings take their part in the effect—instead of a complicated arrange-

ENTRANCE CORRIDOR—BERKELEY BUILDING, NEW YORK CITY.
STARRETT & VAN VLECK, ARCHITECTS.

ment of form in exaggerated verticals and horizontals, creating a false system of shadows on a thin screenlike wall.

Is it necessary to point out that Starrett & Van Vleck have followed tradition in the true way, not thinking of it as a rigid formula but as a flexible series of forms—alive—to be applied in a fresh spirit in a new type of architecture? And that, although some of these forms are of historic Gothic, Venetian, Italian and English origin, they have been so adapted to their new functions that they seem new?

Imaginative, even complex in parts, as this design is, it is in essence direct and simple. This makes it more useful as a style than a more complicated architecture would be. Thought and inspiration are more important in it than elaborate design or expensive materials, and hence it furnishes a style which can be applied to simpler buildings. The elaboration of the Gothic type, as I have pointed out, is a real weakness; to have value, a style should be flexible enough to produce simple, inexpensive architecture, as well as elaborate structures.

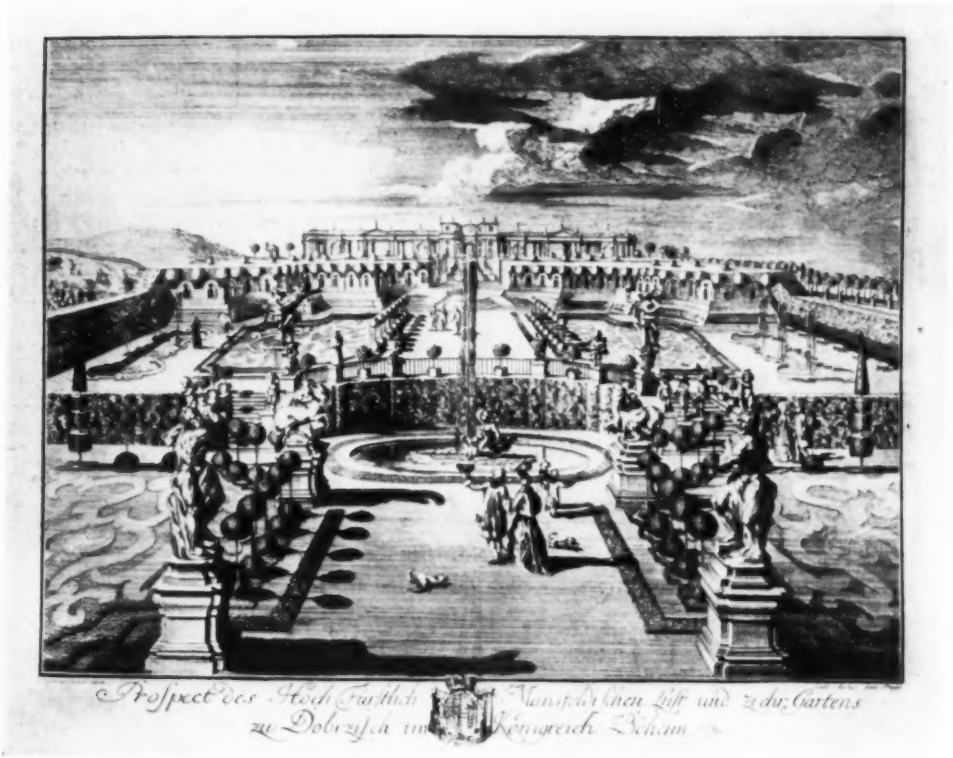
With such splendid models as these, one may regret that too few architects have not realized in skyscrapers the ideal which the world has set before them. Among all the hundreds of lofty buildings built in twenty years, barely a score have extraordinary merit, and few rival these three.

One hears the excuse: "Considerations of cost forbid design." But cost is not always in the way, for many an owner has been generous with his architect, and there are many poor designs which cost more than Starrett & Van Vleck's. Starrett & Van Vleck are as "practical" as any, but they know well that, to be practical, it is not necessary to lower the banner of fine architecture. They have truly flung their banner into the sky.

It is a magnificent achievement, one which deserves to be better known. It brings the skyscraper in line with the progress made in other fields. For several years I have endeavored to trace the evolving standards of true American architecture. The first modern native beginnings were made by the Philadelphia architects in country houses, a movement which spread swiftly over the east and was echoed in the extraordinary achievements on the South Pacific coast, perhaps the finest of all at present. Then small town architecture, our architectural backbone, became more distinctive; next more characteristic work appeared in the cities, particularly New York, with its housing types, its smaller commercial types, such as shop fronts and the low four or five story commercial building. And now the skyscraper appears to be coming into its own.

True, the object is far from realized. But to the extent that it is not yet at hand, architecture should strive to bring it about. More than ever we need a distinctive American architecture, one which is coherent enough amid all its variety to provide that harmonious effect of whole neighborhoods and districts which alone creates a beautiful city.

This is the ideal which the world, in a vague way, demands. Starrett & Van Vleck have met it in their skyscrapers.




**THE ORIGINAL DESIGN OF THE GARDEN OF DOBŘIŠ, FROM AN ETCHING AFTER THE PAINTING BY JAHN OF THE GARDENS UPON COMPLETION. THE ARCHITECTURAL SCREEN IN THE BACKGROUND IS BUT A FLAT WALL, WITH PAINTED DETAIL AND CUT-OUT SILHOUETTE.** *("Dobrzisch," as appears in the title, is phonetic spelling of the name.)*

VIEW OF MAIN AXIS, SHOWING OPENNESS OF PROSPECT WITHOUT DISSIPATION OF INTEREST.

# The GARDENS of DOBŘIŠ NEAR PRAGUE, CZECHOSLOVAKIA

*By George Burnap*

*Photographs by Bruner-Dvořák*

THREE hours by train from Prague, or an hour by motor, one reaches Dobříš, the country seat of the Duke of Mannsfeld. The old castle, now used as a granary, occupies a hill-top site and, like many of the Bohemian Castles built in the time of Charles IV, presents a stilted and aloof aspect. The new residence, completed in 1765, gracing an open plateau within near view, is low and hospitable in its architecture. Its gardens of handsome ampleness mark the passage of time from ramparts to terraces. Their unique character arouses interest and urges analysis of the influences that wrought their building.

The architect of neither the buildings nor gardens is known. The only record of the original design is that found in a copper etching after the painting by Jahn, supposedly made immediately upon completion of the gardens. The French influence apparent in the design of the royal castle of Schönbrunn at Vienna, an influence not attributable to a French architect direct, is here less obvious, although there is a similarity between the two designs in the mounting of grades to a glorietta silhouetted against the sky. Dobříš, or the gardens at least, would appear to be an outgrowth of the baroque period, of which Diensenhofer was the leader in Prague and Fischer in Vienna, and may be studied as characteristic of its time.

The garden design structurally follows the topographical substratum with an intermixture of slopes, banks and low retaining walls in major part softened by concealing hedges. There is none of the right-angle hewing of contour to exact levels, with the consequently high, oft-time overbearing retaining walls typical of Italian baroque gardens. Instead of

closely confined vistas, moreover, such as mark each axis of Italian garden design, there is open prospect and breadth suggestive of French concepts, yet without the level monotony of vanishing distances of *les grandes compositions*.

A feature of the gardens is the architectural screen surmounting the ridge at the upper confine of the garden proper. A climax to the garden design, it neither dominates the scene nor monopolizes the interest. Unlike the far-off glorietta at Schönbrunn, it is in focus with the garden composition as a whole. In detail this screen is uniquely interesting in that its architecture, as delineated in the accompanying etching, was executed in paint, not substance—the illusion heightened by a cut-out silhouette. At present, mere traces of the painting remain and the wall along its entire length has been raised to the height of the central feature and topped with a balustrade.

In general plan the gardens of Dobřiš affect frankness of design in an open treatment of rectangular area, symmetrically apportioned to various sorts of gardenesque spaces, the central axis extended and terminated in an ornamental *cul-de-sac*. There is, however, artful intricacy in the disposition of side aisles which divert the visitor constantly into leafy chambers and through various shady by-ways to the far point of the garden without revealing more than what each pathway holds. Skilfully the return route leads by a broad walk, avenued with century-old trees, through a succession of balustraded compartments—once enlivened by monkeys and parrots on perches—to an exit gateway of the garden. There is subtle mockery in the fact of recesses unexplored, in realization of garden compartments unseen. One perceives in retrospect the finesse of a garden which gratifies first inspection without revealing its full store of treasure, which withholds much of its beauty for later survey.

Beyond the garden lies a magnificent park, or rather a well-kept forest preserve. There are open knolls planted in a variety of trees brought from many countries. There are shaded glades enriched with rhododendrons acclimated after many years of patient care. The park is separated from agricultural fields by a surrounding wall, of stucco surface and tile coping, erected to keep the deer in rather than trespassers out—for good will is the only protection from intruders on an estate of such extent. The park embraces a small lake from which water is pumped, by water-wheel formerly and now by motor, to a reservoir which supplies the fountains and pools of the garden.

A conspicuous charm of the park lies in its original individualistic character. There is no introduction of English "naturalistic" effects, no piercing with French *clair-voyees*, no artificial thickening with *bosque* undergrowth. It is native design. The same, once true, may no longer be said of the gardens. Fortunately not appearing in the illustrations of this article, the first garden level has been profanely converted by whim of the present owners into an extremely mediocre French scroll parterre. It is to be hoped that the innovation is but transitory and that the garden will not deteriorate into a residuum of styles. The merit of the garden design makes extremely desirable the restoration of the Dobřiš garden to its original character and its preservation as Bohemian garden precedent.

THE OLD CASTLE OF DOBŘIŠ, BUILT IN THE FIFTEENTH CENTURY, NOW A GRANARY (SEEN AT RIGHT), AND THE NEW RESIDENCE ERECTED THREE CENTURIES LATER.

VIEW TOWARD RESIDENCE FROM THE SOUTH, SHOWING TREATMENT OF THE AREA ASSIGNED TO THE GARDEN SETTING.

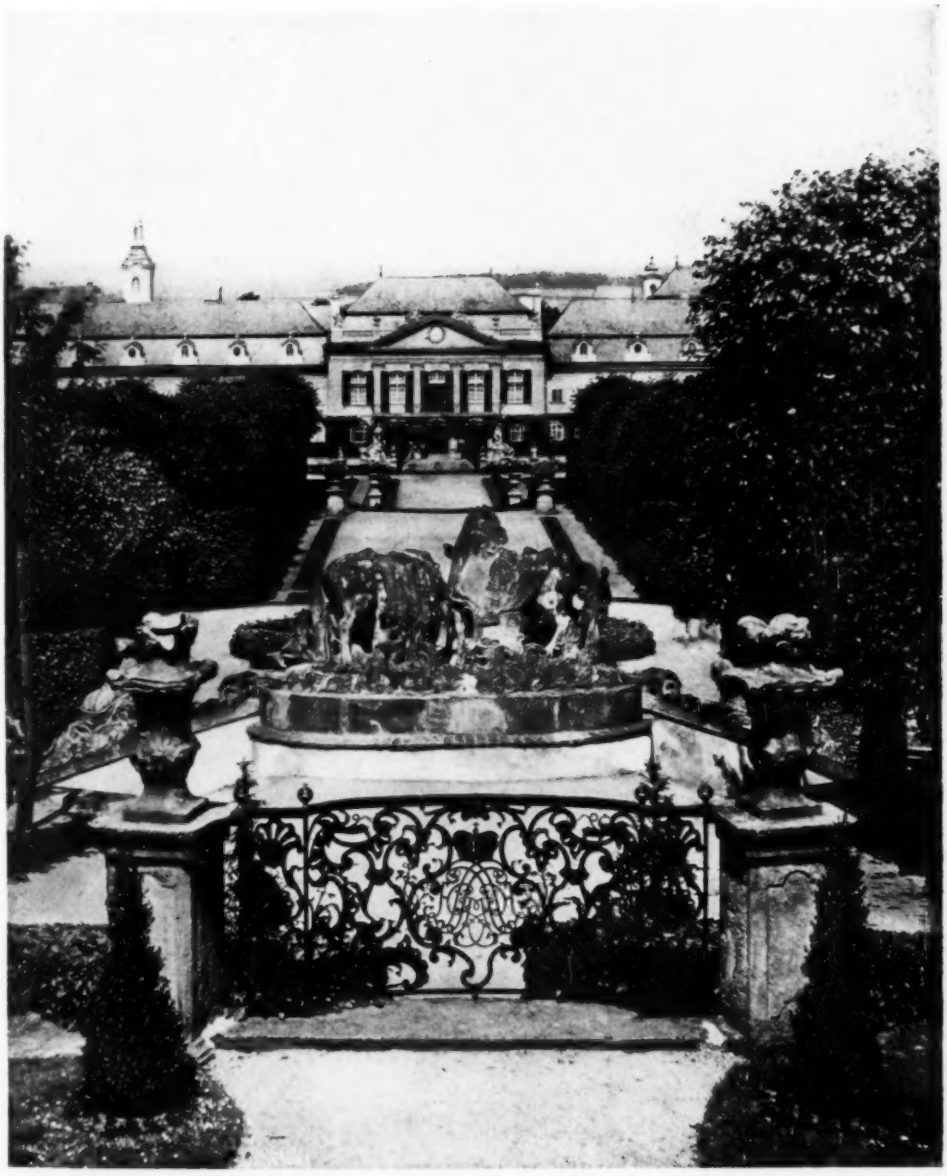
PORTAL OF THE ENTRANCE FAÇADE LEADING TO CARRIAGE COURT WITHIN. THE WING TO THE RIGHT CONTAINS THE STABLES; THAT TO THE LEFT, THE SERVICE.

A MONUMENTAL GATEWAY GIVES APPROACH TO THE COURT OF HONOR FROM THE WEST. THE FLOWER-BED IN THE PICTURE CONCEALS A DOUBLE LEVEL FOUNTAIN WHICH BREAKS THROUGH THE LINE OF THE RETAINING WALL.

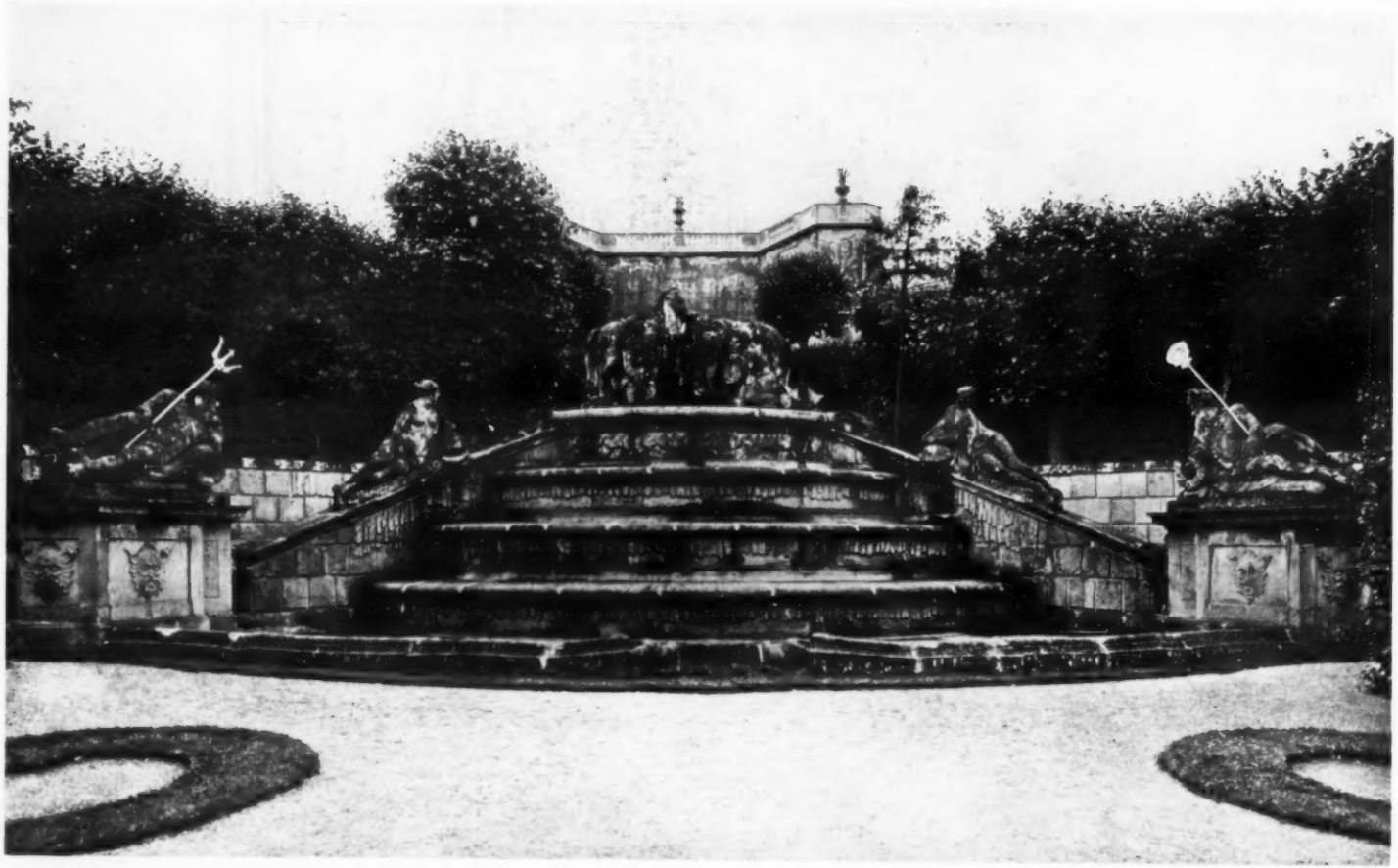
THE FIRST VIEW OF THE GARDENS THROUGH
A VESTIBULE PASSAGE FROM THE COURTYARD.

ARTFUL WALKS DIVERT ONE CONSTANTLY FROM THE MAIN AXIS.

THE ARCHED ENTRANCE IN THE SCREEN WALL OPENS INTO A PALM HOUSE WHICH CONNECTS ON EITHER SIDE WITH A CONSERVATORY AND AN AVIARY.



THERE ARE SEVERAL BEAUTIFUL EXAMPLES IN THIS GARDEN OF THE PRAGUE IRON WORK THAT ABOUNDS IN ALL BOHEMIAN CHURCHES AND PALACES OF THE BAROQUE PERIOD.



FOUNTAIN OF POSEIDON ON MAIN AXIS OF THE GARDENS. STATUES BY PLATZER, A CZECH SCULPTOR WHO DIED IN 1787.

THE SOUTH FAÇADE OF THE RESIDENCE WHICH GIVES VIEW OF THE GARDENS FROM THE PRESENTATION AND LIVING ROOM WINDOWS.

THE ONLY VIEW INTO THE GARDEN FROM WITHOUT THE ESTATE.

ONE OF THE MINOR POOLS WHICH ORNAMENT THE CROSS AXIS OF THE GARDEN AREA IMMEDIATELY BEFORE THE RESIDENCE.

A MAIN CROSS AXIS OF THE GARDEN SHOWING THE ARCADED BEECH HEDGES WHICH MASK THE TRUNKS OF THE GLOBE-HEADED LIME TREES THAT LINE MANY OF THE WALKS.

THIS AREA HAS RECENTLY BEEN ENTIRELY GIVEN OVER TO A MEDIOCRE FRENCH PARTERRE DESIGN WHICH INTERRUPTS THE MAIN AXIS AND PROFANES THE GARDEN AS A WHOLE.

LLOYD ELIOT WARREN
1868-1922

# LLOYD ELIOT WARREN

*"Who Nature and the Muses loved"*

*by*

*W. Francklyn Paris*

WHEN Ralph Waldo Emerson, speaking to the graduating class of Dartmouth College, urged upon the young manhood of the day not to renounce learning and romantic expectations to get land and money, place and name, he uttered the truth that the "domineering temper of this sensual world creates the extreme need of priests of science."

This was in 1838, and the sage of Concord had less grounds for alarm at the materialism of the age than he would have today, but what he said then was not wafted away on the summer breeze and lost. He is gone, but his words remain. "The wintry blast of death kills not the buds of virtue. They spread beneath the beam of brighter suns through endless ages."

He warned his hearers that the vice of the times and of the country was an excessive pretension, and he urged them to seek the shade and find wisdom in neglect. "Be content with a little light, so it be your own," counseled the great American philosopher; "be neither chided nor flattered out of your position of perpetual inquiry. Neither dogmatize yourself, nor accept another's dogmatism and do not renounce your right to traverse the star-lit deserts of truth for the premature comforts of an acre, house and barn. Truth also has its roof, and bed, and board."

I was not familiar with this quotation until Lloyd Warren brought it to my attention. I was chiding him gently for his habit of self-effacement, and this was his justification and his defense. It paints the man as well as anything I could say in praise of his character, which was noble and sensitive and exquisite, and if there is any virtue in the saying "as a man thinketh, so he is," then Lloyd Warren was as Emerson would have wanted him to be.

He was born in Paris in 1868, so that his sympathy with the French point of view and his intimate knowledge of the French character came to him by right of inheritance, so to speak. Although educated here, he returned to Paris upon his graduation from the School of Arts and the School of Mines of Columbia University and enrolled as a student of the École des Beaux Arts, where he remained six years. He always spoke of those six years as the happiest period in his life. The Latin Quarter of that day was no longer the Bohême of Murger, but the young men of the Rive Gauche were still *"abreuvés d'idéal"* and Lloyd Warren shared with them their contempt of the bourgeois and their belief that *"il n'y a de vraiment beau que ce qui ne sert absolument à rien."*

When he returned to this side he "went into business," but he was of a delicate nature and the miserable arithmetic of dollars and cents so offended his susceptibility that he gave it up in disgust.

"The best of men have ever loved repose:
They hate to mingle in the filthy fray,
Where the soul sours, and gradual rancour grows,
Embittered more from peevish day to day."

Lloyd Warren was one of these, and rather than have his soul grow sour he gave up an easy career as a constructive architect and became a "priest of science."

He was convinced that the doctrines taught at the Beaux Arts were the only true religion, and he belonged to that little group of American students of the École who, sitting on the terrace of the Café Voltaire, on the Boul' Mich', back in 1890, had decided to form in New

York a Beaux Arts society, where the teachings of the institution in Rue Bonaparte might be brought within reach of such American students of architecture as could not go to the mountain.

Many are the alumni of the École des Beaux Arts who have given of their funds and of their time to the Beaux Arts Society of New York, but not one has given as much of both as did Lloyd Warren. The New York institution was the only child of this soft-spoken and mild-mannered bachelor and he nursed it and favored it and was as proud of it as the mother of the Gracchi who rejoiced and gloried in her sons. Each year, when the time came to make up the inevitable deficit, the list was being passed around for contributions to the relief fund, and, "lo, Lloyd Warren's name led all the rest."

The Society of Beaux Arts Architects and the Beaux Arts Institute of Design, which it maintains at 126 East Seventy-fifth Street, have lost in him the fairy godfather who could always be counted upon to come to the rescue when disaster threatened. It was he who paid off the mortgage on the building which the Society and the Institute occupy and again he who leaned over the shoulders of the students of the Institute and, in that kindly manner and low voice that stamped him as a courtly personage, corrected their errors or criticized their efforts.

In these criticisms never once did he yield to the temptation to indulge in sarcasm, never once did he move away from the work criticized without tempering the critique with some word of encouragement. He had borrowed the formula of Bonnat and generally greeted a drawing with the familiar "not bad" . . . not good, but not bad" of that French master whom he loved and by whom he was highly esteemed. As a result the young men of the Institute had a real affection for him, as well as a high regard for his judgment and authority. Many of them he assisted financially and others he placed as draughtsmen in his brother's office or in other ateliers where his recommendation had weight.

He had secured for the students of the Institute the privilege, enjoyed by no other school of architecture or design, for graduates to whom had been awarded the Institute's Prix de Paris, to enter the École des Beaux Arts without examination, and last year much of his time in Paris was spent in making arrangements for a summer school of architecture to be held at Fontainebleau.

He had an exquisite taste in all the finer arts, and it was a treat to hear him rail against Cubism, Dadaism, Pointillism "and all that rot." He unbosomed himself to but few, however. His was a reserved and squeamish personality, a fastidious being who "scorned adulation to receive or give." When he conferred a grace he sought to make it seem a debt paid to merit.

We were both active during the war, as members of the Fraternité des Artistes, in coming to the assistance of the families of French painters and architects and to their widows and orphans. It was this association that permitted me to penetrate his reserve and to see behind the mask of imperturbability with which he veiled a highly sensitive nature. He was a little ashamed, or at least terribly embarrassed, whenever any one perceived to what depth he was stirred by his emotion. He loved the French and suffered agonies during the first weeks of the war, but always he had the conviction that eventually right would prevail over might. "If I did not believe that," he told me, "life would hold nothing for me."

In his family life he was exemplary. His devotion to his parents and to two sisters, who died when he was just entering manhood, was of a quality that is no longer encountered. The relationship between him and his brother, Whitney Warren, was comparable to the classic friendship between Orestes and Pylades. The two were inseparable, and the same taste in music and art furnished occasion for as fine a companionship in ideas as is possible to conceive.

Although of a retiring disposition, Lloyd Warren held membership in many clubs — the Knickerbocker, the Union, Century Association, Racquet and Tennis,

Tuxedo, Players, Automobile Club—but these castles of indolence saw less of him than his pupils of the Institute. He played a good game of tennis, played agreeably on the piano, enjoyed the play and the opera and "nothing human foreign was to him," but first of all he was Emerson's "priest of science," or of art, whose joy was in teaching.

In the funeral oration pronounced over his remains in St. Thomas' Church by the Rev. Dr. Mansfield, that distinguished divine spoke of the grace "that kindled in his heart deeds of friendliness and kindness, generous sacrifices and constant endeavor to serve his fellowmen in work and ways that have counted for good." *De mortuis nil nisi bonum*, and many are those over whom similar orations have been said. What distinguishes Lloyd Warren from the rest is that in his instance the eulogy was deserved.

As outward signs of his merit, he held the diploma of the French Government for Architecture, the Honorary Degree of Master of Arts conferred upon him last year by Yale University and the cross of the Legion of Honor given to him by France in recognition of his work in connection with the Fraternité des Artistes during the war.

"The wintry blast of death kills not the buds of virtue." The seed planted by Lloyd Warren will bring forth, if not a harvest of fruit, at least a beautiful flower. "Rosemary, that's for remembrance."

# The BUILDING PROSPECT for 1923

By
Thomas S. Holden, Statistician for
The F. W. Dodge Company

IN making estimates and forecasts the statistician leaves the realm of tabulated facts and ventures into the field of prophecy, which has many pitfalls.

The estimates for 1921 and 1922 (shown in Table I) are based on a record of past performance. The F. W. Dodge Company's building statistics are very complete and accurate for the territory they cover, which includes twenty-seven States occupying the Northeastern third of the country. These States include about seventy-two per cent. of the country's total population, and, probably, a rather larger proportion of its construction activity. The construction work of the country as a whole is estimated on the assumption that the Dodge figures represent three-fourths of the nation's total. The figures for 1921 are based on the complete year's record, those of 1922 on the actual record of the first nine months of the year.

Thus the estimates of these two annual totals are substantially correct. The estimates for the various classes are, naturally, subject to a greater percentage of error than is the estimate of total construction. The Dodge Territory, including nearly all the industrial centers of major importance, obviously contains a considerably larger proportion of the country's total industrial construction than it does of the residential. This has been taken into account in the figures shown.

In estimating future performances—in particular, the figures for 1923—various methods are possible. A common method is to tabulate the number and estimated cost of construction jobs that are being planned. This information is usually obtained from the architects who report the plans in progress in their offices. However, no one knows better than the architects that the volume of construction work in the plan stage is always scaled down when it comes to actual construction. The Dodge Company's records for a number of years previous to the war showed that usually the annual total of construction started was one-third less than the volume of construction projected. During the years 1919, 1920 and 1921, the projected work was scaled down one half. Unfavorable conditions as to cost levels, general business and availability of money at reasonable rates will scale down the most ambitious building program, even in the face of enormous construction needs. On the other hand, a year of favorable conditions will bring to completion an enormous volume of construction that was not definitely planned at the opening of the year.

In view of these well-established facts, it seems advisable to the writer, although there is available a record of unfinished contemplated work running into billions of dollars, to base his estimate for next year on past performances and the probable trend of business conditions that will affect construction rather than on a tabulation of plans in progress at the present time.

The year 1922 has made a record. In nine months there has been a larger volume of construction started (expressed in dollars) than in any previous entire year. The proportion of residential building has been unusually large. At the close of the war the need for residential building was enormous, and construction in this class was large in 1919. It fell to a low level in 1920, the year of peak prices and violent reaction. Residential construction improved considerably in 1921, being the predominant element in the somewhat restricted building program of that year. During that year of business depression, however, construction was maintained at a rate that was high in comparison with most other lines of business. In 1922, with cost

TABLE I.

ESTIMATED ANNUAL CONSTRUCTION VOLUME IN CONTINENTAL U. S.

(Figures in Millions of Dollars)

| Class | 1921 | 1922 |
|---|---|---|
| Business Buildings | 437 | 630 |
| Educational Buildings | 314 | 400 |
| Hospitals and Institutions | 92 | 101 |
| Industrial Plants | 195 | 346 |
| Military and Naval Buildings | 8 | 4 |
| Public Buildings | 27 | 42 |
| Public Works and Utilities | 637 | 810 |
| Religious and Memorial Buildings | 82 | 108 |
| Residential Buildings | 1,210 | 1,710 |
| Social and Recreational Projects | 140 | 149 |
| Total | 3,142 | 4,300 |

Estimates based on statistics of the F. W. Dodge Company.

TABLE II.

| | |
|---|---|
| Rough Estimate of Total Construction, 1923 (see text) | $3,750,000,000 |
| Rough Estimate of 1923 Construction to be Built from Architect's Plans | 2,267,000,000 |

TABLE III.

ANALYSIS OF TOTAL CONSTRUCTION

NOTE—This table includes a tentative analysis for 1923. By applying the 1923 percentages to the estimated total, shown in Table II., a rough schedule of 1923 by classes may be made. Such a schedule should be looked upon as tentative and subject to modification if conditions develop differently from present indications as outlined in the text.

| Class | 1921 | 1922 | 1923 |
|---|---|---|---|
| Business Buildings | 13.9% | 14.6% | 18% |
| Educational Buildings | 10.0 | 9.3 | 7 |
| Hospitals and Institutions | 2.9 | 2.3 | 2 |
| Industrial Buildings | 6.2 | 8.1 | 14 |
| Military and Naval and Public Buildings | 1.2 | 1.1 | 1 |
| Public Works and Utilities | 20.3 | 18.8 | 20 |
| Religious and Memorial Buildings | 2.6 | 2.5 | 2 |
| Residential Buildings | 38.5 | 39.8 | 31 |
| Social and Recreational Projects | 4.4 | 3.5 | 4 |
| | 100.0% | 100.0% | 100% |

Estimates based on statistics of the F. W. Dodge Company.

TABLE IV.

CONSTRUCTION PLANNED BY ARCHITECTS

(See Analysis in THE ARCHITECTURAL RECORD for September, 1923)

| Class | Percentage by Architects |
|---|---|
| Business Buildings | 84.5 |
| Educational Buildings | 94.7 |
| Hospitals and Institutions | 92.2 |
| Industrial Buildings | 56.0 |
| Military and Naval Buildings | 67.7 |
| Public Buildings | 86.2 |
| Public Works and Utilities | 8.6 |
| Religious and Memorial Buildings | 92.6 |
| Residential Buildings | 66.1 |
| Social and Recreational Buildings | 88.5 |

levels somewhat stabilized, and with money for residential construction readily available, the long dammed up demand asserted itself, and residential work in unprecedented volume was undertaken. Something of a reaction in general construction activity has already set in. It is largely attributable to the normal seasonal lull in activity during the autumn months. Important contributing factors have been the car shortage, fuel shortage and consequent shortage and delay in deliveries of materials, rising prices and rising wages. The seasonal decline is welcome at the present time. It is the most favorable indication of a good volume of construction next year. In checking the expansion of construction now, it tends to prevent overcrowding of construction facilities and to curb the rise in prices and wages.

Construction of mercantile buildings has proceeded at a rate that has been fairly near normal in proportion to the total. Industrial construction reached a very low ebb in 1921. Progressing slowly, it has in 1922 proceeded at a rate about double that of 1921. With the general upward trend in business and industry, this class of construction will steadily increase; just how rapidly, depends upon factors which are extremely difficult to estimate.

With expansion of business and industry, the demand for money for general commercial and industrial purposes increases. The demand for materials and labor for the construction of commercial and industrial buildings also increases. At such a stage of the business cycle, residential construction and those classes which follow its trend rather closely tend to be restricted.

In 1922 there were four consecutive months, April, May, June and July, in which the volume of contract-letting was considerably in excess of the previous high records shown in the Dodge Company's statistics. Are these high records, due largely to an enormous volume of residential building, likely to be repeated or bettered next year?

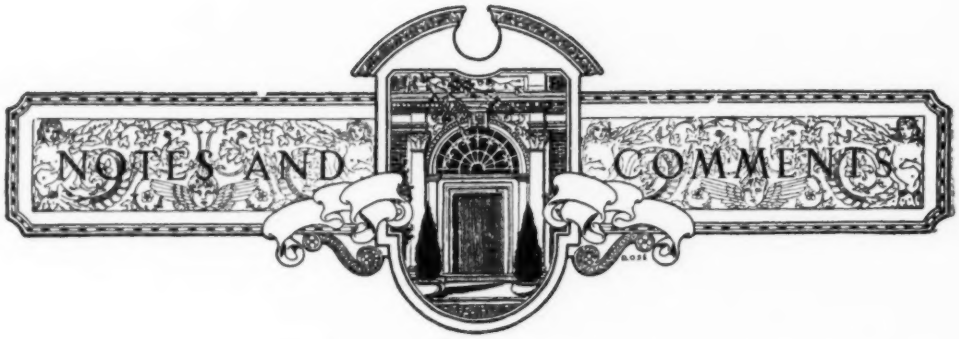
At the present moment it does not seem likely that the 1922 record will be repeated next year. Although there is still an enormous demand for residential construction, and although many localities which have not yet had any substantial building revival will probably do better in 1923, it would appear that residential construction will not be so large in volume next year as it has been this year. While mercantile and industrial construction will probably increase, it seems doubtful that they will be in sufficient volume to offset the probable decline of residential construction. The building revival seems destined to extend well into next year. But it appears now that next year's program will be different from this year's in character and somewhat less in total volume, although the volume will be well up to what may be termed normal.

In consequence of the above considerations, the estimated total for next year has been set at a figure that is approximately the mean between the 1921 and the 1922 totals, $3,750,000,000.

The work that architects will plan (Table II) is estimated on the basis of an exhaustive analysis of their share in the construction business, which was published in the ARCHITECTURAL RECORD for September, 1922. If the estimate of the 1923 total be correct, then the figure for the total to be constructed from architects' plans is very close to what will actually occur.

These figures are submitted, not as predictions or prophecies, but merely as a tentative schedule of what, on the first day of November, 1922, it seems reasonable to anticipate next year.

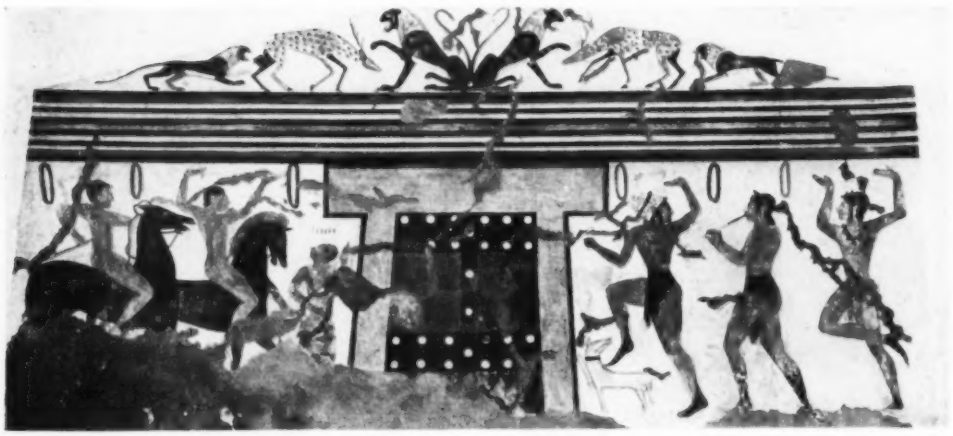
The tentative analysis of 1923 construction (Table III) will enable anyone so inclined to make up a rough schedule of the 1923 program by classes. If such a table is made, and the percentages of Table IV applied to the figures obtained, a rough approximation to a program of work to be carried through by architects next year will be obtained. The data for estimating is thus submitted instead of an actual estimate by classes so that the user of the figures may realize the tentative character of his estimate and may modify it as conditions change.




**Etruscan Mural Paintings Found in Their Tombs.**

The indefiniteness which at present surrounds the origin and development of Etruscan art expression makes any addition to its bibliography very welcome, and it is with a feeling akin to excitement that one examines such a work. Archaeology is divided into three spheres of activity, the historical, the anthropological, and the aesthetic. Unfortunately, the major interest does not always take precedence in investigation, as is the case with Frederic Poulsen's "Etruscan Tomb Paintings." The main interest in these fascinating paintings is centered in their artistic history and the actuating impulses: the author states in his preface, "a detailed estimate of the artistic significance and properties is not yet possible"—a statement which is not supported by the illustrations of the paintings. Though the illustrations are reproductions of copies made from the paintings, which obviously fail to reveal the full content of the originals, the student of architectural and decorative expression will find much therein of the greatest interest, and many points that are fruitful in suggestion. The artist or architect making research in such works, naturally expects to find some attention given to technical detail essential to an intelligent comprehension of the artistic work described and analyzed; but how frequently does the archaeologist overlook the fact that there is a utilitarian channel for his records in the practice of those arts he chronicles; and, that the painter and architect will need specific information to enable them to produce after the manner of the works analyzed. As an example of this, we have only to study architectural writings of an archaeological and historical character, with the intent to discover the manner of color treatment in styles that featured polychromy, to find this predominant factor completely ignored in the majority of standard and specialized works. This extremely interesting and conscientiously compiled work is a typical example of an archaeologist's investigation of an artistic subject which omits information essential to artists and architects; although the subject treated is painting, there is practically no information on the character of color harmony, technique, or the palette; information on color location occurring in the form of casual observation. To appreciate the decorative value of these paintings it is vital that some data be given on those points. The subject, in each case, is the theme developed, from the angles of social life, morals, athletics, etc.; but when we find considerable space devoted to discussing whether the men of that period took their wives or their mistresses to the symposium, and the subjects of color effect, character of composition and architectonic relation overlooked, we cannot but feel that this subject should have been handled by an archaeologist whose sympathies were artistic rather than sociological. As a matter of fact, the majority of recruits to that class of authorship lean to scientific and historical investigation, rather than to the artistic.

With keen interest now centered on all phases of archaic art expression, many interesting parallels and deductions will inevitably be made by students of architectural decoration who examine this book. The paintings of the greatest interest were produced during the sixth and fifth centuries B. C. The first excavation was made by Vittorio Massi, major-domo to the Bishop of Corneto. In 1827 Baron Stackelberg, a German archaeologist, and Thürmer, a Bavarian architect, undertook the work of measuring and copying the

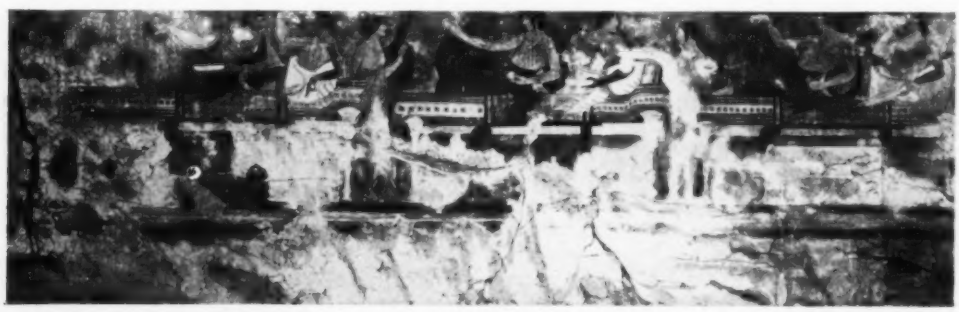


tomb interiors then discovered. They made 225 drawings which have been preserved in the Archaeological Seminary of the University of Strasbourg. In the sixties of the last century the Queen of Sardinia obtained revenue by leasing tracts of land in the vicinity of Veii to Roman antique dealers, who rifled the tombs of their accessories. Dennis in his "Cities and Cemeteries of Etruria" recounts having been present when some of these dealers opened a tomb at Vulci, and finding nothing but pottery, smashed it all as an expression of their disappointment.

In his preface Poulsen summarizes the literature dealing with his subject, with an appraisal of the relative values of the various works and sketches; he tells of certain works in preparation which should contribute valuable information to the history of Etruscan art.

One of the most interesting phases of the tomb paintings is the evidence of Greek influence, and the recognition by the Etruscans of the supremacy of that race in the art expression of the day. In examining the Tomba del Barone, Körte discovered Greek letters scratched on the wall, which proved to be the mural artist's calculation of the number of hours that he had spent on the work, in order that he might reckon his payment. The paintings of the Tomba del Bighe are by a Greek artist, who apparently executed subjects described by his patron; in certain details, however, he has introduced items of his own initiative, which, not according with the prescribed details, are most valuable from the point of view of art history.

The general character of the figure composition is essentially Greek, resembling the spacing of the figures found on the sculptured friezes and the vases of the contemporary periods in Greece. There is nevertheless a strong individual note in all these decorations, which differentiates them from work in other media, due to their intuitive appreciation of the inherent decorative capacity in each medium for effect. From the sparse technical information given in this work, it would appear that the same colors were employed for these paintings that were used for the decoration of the buildings and sculpture



during the Doric period. It is extremely interesting to find that the Greek principle of color alternation was so much a habit of thought, that in the mural decorations of the Tomba Campagna, the painter has colored the horses' legs in alternating colors. The actuating impulse in decoration is purely architectonic; and, as the painters missed the strong values of the moldings as a finish to their work, they created a corresponding value with a mass of superimposed bands of various colors.

As these tombs had only one doorway, they painted three others on the unpierced walls, with the obvious aim of balancing a structural feature, which alone, might disturb the symmetry of their painted decorations. The triangular panel above the frieze created by the angle of the ceiling was treated after the manner of a pediment decoration; the Tomba del Inscrizione is a fine example of a pediment design consisting of lions and antelopes.

We are rapidly recovering from the idea that decorative detail should be related or pertinent to the purpose that the building is intended to fulfill, and are naturally observant of the extent to which this view influenced the creative energy of the ancients. In examining the decorations of these tombs, to gauge the mental attitude of the Etruscan towards death, one is struck by the complete absence of gloom, and the subordination of any allusion to the regrettable incident in those rare instances in which it figures at all. An atmosphere of great conviviality permeates some scenes, while incidents indicative of the exuberance of life inspire others; love, sport, dancing and feasting are the favorite themes for tomb decorations; a funeral was evidently a very festive occasion, at which the guest to the rites, however, remotely connected, could, without effort, enter into the spirit of the proceedings with the sole qualification of a cheerful disposition. The concept of Beauty was interwoven with the Greek cult, and with that of other races influenced culturally by them; the main characteristics of their deities were human impulses, and the Elysian Fields a more consoling idea for the bereft than the unknown terrors awaiting the wrong-doer, and the extremely precarious valuation of the good-deed in the Final Appraisal.

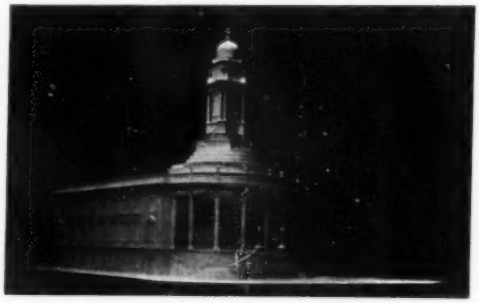
LEON V. SOLON.

**Philadelphia's Sectional City Hall**

A somewhat novel idea in the construction of municipal buildings has been introduced in Philadelphia in the form of what is termed a sectional City Hall. This city has one of the most magnificent City Halls to be found in this country, located in the heart of the business section and covering an area a block long and a block wide. The growth of the city, however, has made this building difficult of access by reason of the fact that the residential is now far removed from the business section. To facilitate things for at least one of the sections of the city, known as Germantown, the new idea has been put into force.

The new building is to be an exceptionally attractive one, modeled somewhat after the White House in Washington. It will be of Georgian architecture, faced with white marble. Throughout, the structure will be fireproof. The columns of the front porch, Ionic in character, are 24 feet in height.

In designing the building, the City Architect, John P. B. Sinkler, developed a rather interesting feature in connection with the rotunda, which will be 33 feet in diameter and 37 feet in height. It is to contain a Memorial Chamber, wherein will be preserved and exhibited such mementos of the World War as are presented by the citizens of the section where the building will be located.



MODEL FOR CITY HALL, GERMANTOWN, PHILADELPHIA.
John P. B. Sinkler, Architect.

Surmounting the dome of the rotunda will be a tower, rising 132 feet from the ground. The tower is one of the picturesque features of the building. While it strongly suggests the tower in Washington, there is also molded into it some thought of the tower on Independence Hall, Philadelphia. Provision is made in the tower for a clock, and there will also hang there a bell of particular interest to the people of Germantown, who at one time had it in their Town Hall.

J. SELLERS CLARKE.

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**The Architect—Etcher and the Renderer.**

When an architect enters the field of graphic art and takes to the etching needle something of interest to the architectural draughtsman is apt to occur, not necessarily through precise, unmistakable renditions of architectural structure, for that is not always the concomitant of such an excursion into etching. In fact, the architect's personality, apart from his professional attitude, is quite apt to assert itself. An Axel H. Haig will set down a cathedral stone for stone; a John Taylor Arms will loosen his technique as he woos the copper-plate more earnestly; a Charles A. Platt or a J. André Smith will get quite away from buildings, and a William Walcot will weave dreams about them or sketch them with a debonair stroke that brings clever technique and a very personal attitude to the foreground rather the building.

William Walcot has been having an exhibition of his etchings at the galleries of Knoedler & Co. His plates are not only divided in the catalogue into "Roman Compositions" and "Architectural Subjects" (which labels may serve as well as any others), but the works themselves fall naturally into two groups, sharply differentiated by style, point of view, and size.

The "Roman Compositions," much larger than the others, are products of an imagination which rises to its highest point, probably, in "The Siege of Troy," with its rich spotting of figures, and "Babylon," in which the eye, led by a wide-embracing fancy, travels over an indefinite bird's-eye view of buildings, trailing off into a dim distance. One might fondle a phrase such as "opium dream of an artist," but it doesn't quite fit. There's phantasy here, but the substructure rests on earth, rests on the architectural draughtsman's table. It does that, even though our artist will suspend an electrolier in mid-air, supported only by a few thin, broken strands, or will regularly lose the feet of his figures, setting them on phantom legs. The figures, indeed, are factitious, obviously sketched in over the lines of the

architecture, as the renderer may put them in to show scale. Apparently the intention is to reproduce the half-truths seen when one looks at a more or less comprehensive scene. This very realism gives a feeling of unreality. The figures will presently fade away. There are elephants of papier-maché, presented with so neat a gesture that you will not notice the difference unless you look closely at them. Are not even some of the buildings a mirage? The phantasy itself becomes unreal—and a deeply felt phantasy will not, but will convince so that the unreal becomes real for the nonce. An exceedingly clever artificiality, an artistic exquisiteness a preciosity. Compare this with the imaginings of Marius Bauer, the Hollander—dreams of the Orient made palpable—and it seems that Walcot's art is a nervous, high-strung and ingenious speculation on how a dream might look, rather than an obsessing rendering of a haunting dream.

To the layman, at least, these large plates do not seem to bring very much in the way of an original note in the free rendition of architectural facts. In "Antony in Egypt," indeed, there is a weight of structure and a mystery in the deeply shaded doorway which has a symbolic significance. But, after all, one may desist from looking for something which the artist has not primarily intended to put there, except incidentally or to be gained by inference. It sometimes looks like a struggle between the architect's knowledge of structural and decorative form and the etcher's desire to indicate and not to detail.

Despite the size of the plates the needlework is usually quite delicate, though not with the incisiveness of Whistler. Walcot plays delightfully with the needle in a way that reminds you of pen-and-ink effects. Indeed, here and there, in the swirl of a curved line, in the caressing touch of the etching-needle, there comes a slight, vague aroma of a whimsical cleverness, such as had Alfred Brennan, American master of pen-and-ink drawing.

His small plates deal, not with imaginings, but with facts seen through mood, through temperament, through soul—use what term you will. In them, too, there is reticence; no statements beyond clear suggestions of general effect of building or scene. Sometimes that reluctance to talk, so to speak, produces a terseness, a sketchiness, that apparently slights the building's right to be seen, as in "St. Mark's." Yet these bits of architecture, sketchily set down, may bring their hints in "rendering" to architects and their draughtsmen. One is told, indeed, that a number of Walcot's American fellow professionals have found delight particularly in these small plates.

Walcot is apparently at his happiest in long stretches of urban and suburban landscape fading into a misty distance, as in "The Tyne," "The Pool, London," "The Thames." Not figments of the imagination, not well-tempered reconstructions of ancient scenes, as are a number of the big plates, but every-day views, seen with an eye dreaming into that haze with which the atmosphere envelops things so that they pale out into an evanescent relation with us.

All this playfulness in technique, this dreaminess in contemplation, this flight into the imaginative, may well attract the architectural draughtsman not only by its contrast to his daily task, but also by the measure of suggestion and inspiration which it offers for that task. That impression is strengthened by the group of water-colors—New York City scenes, some of them—which formed part of this show. The speciality of "rendering" is not a narrow one.

FRANK WEITENKAMPH.

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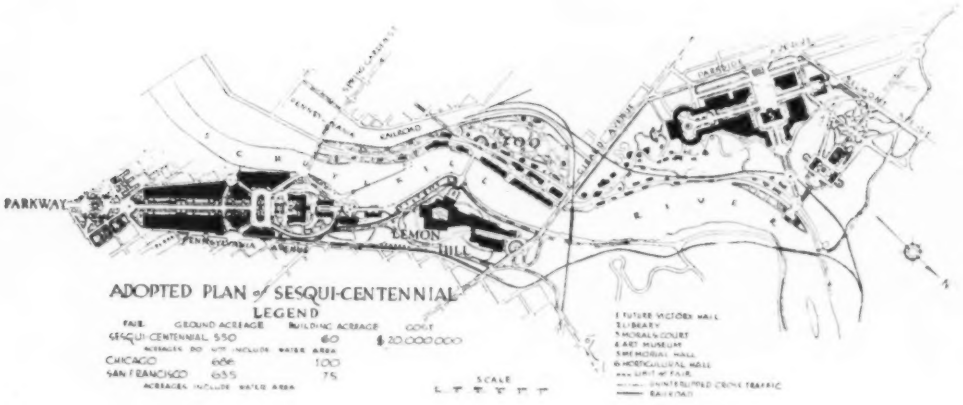
**The Sesqui-Centennial Exhibition at Philadelphia in 1926.**

The Board of Directors of the Sesqui-Centennial Exhibition Association, at a recent meeting, adopted the Report of the Architectural and Engineering Commission, appointed to submit tentative plans for an international fair to be built in the Fairmount Park-Parkway site at a cost of approximately twenty million dollars. The plan provides for an enclosed area of 550 acres, in which there will be sixty acres of main exhibition buildings to be provided by the Exhibition Association. The additional buildings will be erected by foreign and state governments and concessionaires.

The description of the site contained in the Report of the Commission reads in part:

"Beginning at Logan Square, the entrance to the Fair would be flanked on each side by very important permanent public buildings, erected at the expense of the City, representing a total cost of approximately $15,000,000. The library is now under construction, and Victory Hall is provided for by legislation. The Municipal Court is still under debate, but the land has been acquired, and, if necessary, temporary construction could be put upon this land.

"The long axis from Logan Square to the Art Museum creates a formal avenue of great dignity, leading up to the old Fair Mount, which recalls the Acropolis at Athens and is a unique feature not to be found in any other American City.




"The visitor to the Fair, upon passing through and around the Museum, would immediately discover a new picture of a totally different character. The valley of the Schuykill from the Museum to Girard Avenue Bridge, with the hills on both sides, offers an unparalleled opportunity to create an informal architecture on both banks, culminating in a composition on Lemon Hill, from which all of the grounds could be viewed. The visitor, standing on Art Museum Hill, would have these two contrasting pictures created for him by the natural conditions of the site."

The Commission charged with the development of the plans has among its members the following architects: Paul P. Cret, F.A.I.A.; Milton B. Medary, Jr., F.A.I.A., and George Howe, F.A.I.A. Serving as an Advisory Group are: George I. Lovett, President, Philadelphia Chapter, American Institute of Architects; John P. B. Sinkler, City Architect; John H. Rankin, President, State Registration Board, and Charles Z. Klauder, F.A.I.A.

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The jury of award in The Modern Hospital's $1,000 prize competition for plans of a small general hospital consists of the following members:

Dr. S. S. Goldwater, superintendent of Mount Sinai Hospital, New York hospital consultant, and former commissioner of health of the city of New York.

Asa S. Bacon, president of the American Hospital Association, and superintendent of Presbyterian Hospital, Chicago.

Clarence Howard Johnston, Minnesota state architect, former director of the American Institute of Architects, former president of the Minnesota chapter, and designer of the Charles T. Miller Hospital, St. Paul; St. Marys' Hospital, Rochester, Minn.; The City and County Hospital, St. Paul; various hospitals at Minnesota state institutions and many college and private hospitals.

William B. Stratton, of Stratton and Snyder, architects of the Detroit General Hospital; Wayne County Juvenile Court and Detention Home, Detroit Municipal Tuberculosis Sanitorium and Children's Tuberculosis Hospital; the University of Michigan Hospital at Ann Arbor, Mich.; the Municipal Tuberculosis Hospital at Detroit; the Saginaw Womens' Hospital at Saginaw, Mich.; and numerous other hospitals of the Middle West.

Miss Adelaide M. Lewis, R.N., superintendent of the Kewanee Public Hospital at Kewanee, Ill.; graduate of the Hospital of the University of Pennsylvania at Philadelphia; postgraduate of the Presbyterian Hospital, Chicago; former superintendent of the Presbyterian Hospital, New Orleans.

This jury will meet in Chicago to consider the designs immediately following the formal closing of the contest on February 1st, 1923. Registrations for the competition will be received at the Chicago office of The Modern Hospital on or before December 15.

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Gerald Lynton Kaufman, Architect, announces the removal of his office from 101 Park Avenue, New York City, and the establishment of new offices at 331 Madison Avenue, New York City.

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Two prizes, one of $500 and one of $250, will be awarded to the successful contestants in a competition for covers for *The House Beautiful* magazine. The competition will close February 10, 1923. Other particulars of the conditions to be observed may be found in the November or December issue of *The House Beautiful*, or may be had upon application to the Competition Committee, 8 Arlington Street, Boston, Massachusetts.

# Redwood Special Sawn Shingles

THESE new style sawn shingles are fast coming into use for side walls of residences in the Middle West and in the East.

They are 24 inches or 26 inches long, as desired, both sizes being 5½ inches wide and ¾ inch thick at the butt. Laid 13 inches to the weather and painted, they give the appearance of wide clapboards, as will be seen from the illustration.

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*For the convenience of architects and builders, we have recently issued our "Construction Digest" and our "Engineering Digest" which either our New York or Chicago office will gladly forward, together with any additional information which you may desire. Write for them.*

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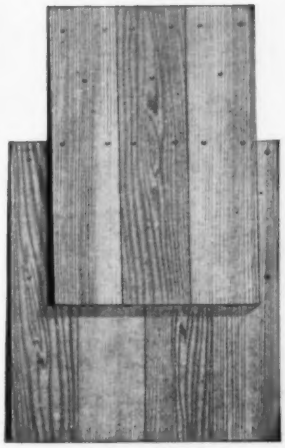

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***Interior Finish***
Natural, stained or painted Wood Block Floors.

***Industrial Uses***
Tanks and vats for water, chemicals and oil--factory roofs and gutters--wood block flooring.

***Wood Specialties***
Such as--Caskets and burial boxes--incubators and ice cream cabinets--cigar and candy boxes, etc.

***Railroad Uses***
Such as--Railroad ties and tunnel timbers---signal wire conduits and water tanks--car siding and roofing.

***Farm and Dairy Uses***
Such as--Silos, tanks and troughs--hog feeders and implement sheds--wood block floors, etc.

# Nozzle Your Fireplaces

The tapering throat at the top of the fireplace gives force to the draft. It is like the nozzle of a hose.

Some builders are unfamiliar with the correct methods of fireplace construction. Their fireplaces with no pretense of throats or with improperly constructed throats are sluggish, smoky and useless for heating purposes.

But when the architect specifies the Peerless Dome Damper, the builder is provided with an iron form around which he must build. The throat is automatically given the proper width, height and taper. The opening into the chimney may be contracted or enlarged as necessary to conform to the size of the flue and interior air conditions.

*Write for working drawings and complete dimension tables*

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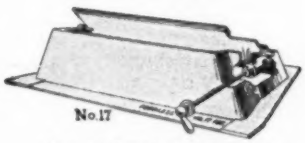
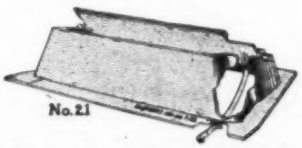
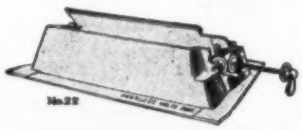
*Force to water, Strength to Draft - Same Principle*




Operated from face of fireplace.




Operated from top of fireplace opening.



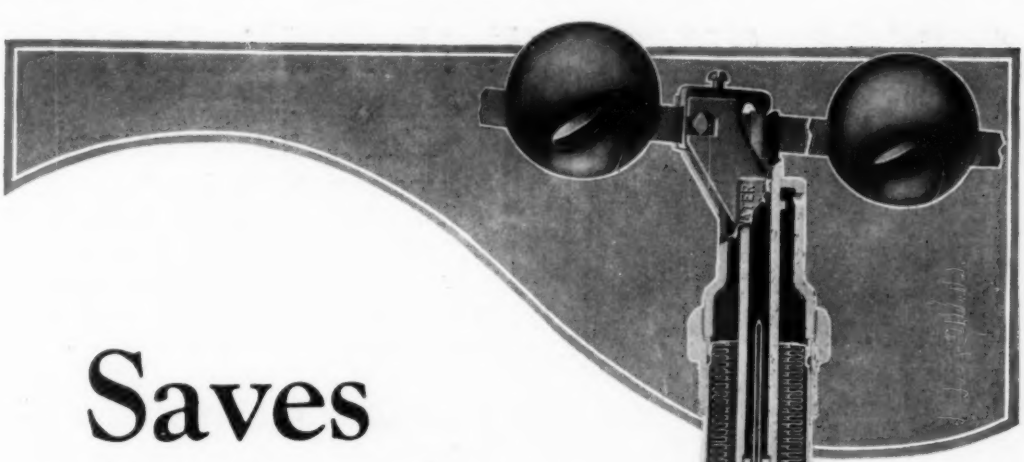

Operated from chimney breast at right of fireplace, as in illustration above.

The dampers are identical except in means of operation, which are interchangeable.

*Largest manufacturers of fireplace equipment in the world*

# PEERLESS DOME DAMPERS


The Architectural Record—December, 1922—No. 291. Published Monthly—$3.00 a Year—119 West 40th St., New York, N. Y. Entered as second-class matter May 22, 1922, at the Post Office at New York, N. Y., under the Act of March 3, 1879. Printed in U. S. A.



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The mantel, of walnut, is exquisitely carved in the Renaissance manner, the fireplace being red Numidian marble. The walnut furniture is Italian Renaissance, although period is not closely observed. Hangings and upholstery are wine-colored, the carpet in the same tone, blending delightfully with the walnut wall panels.

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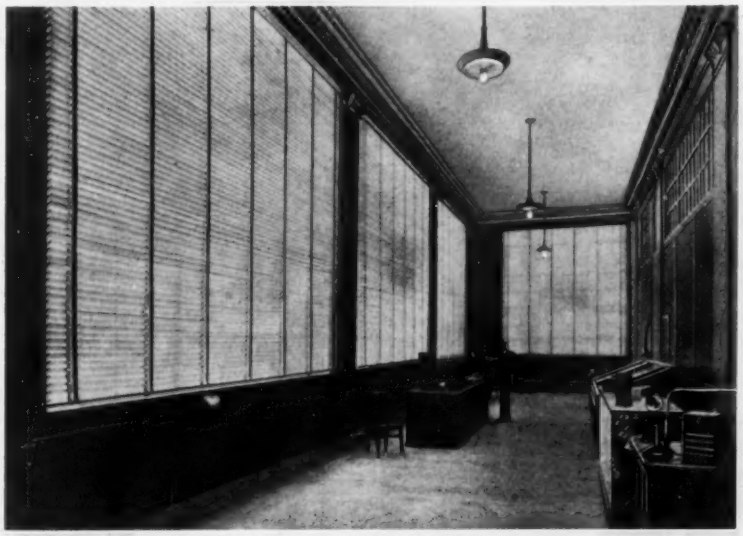

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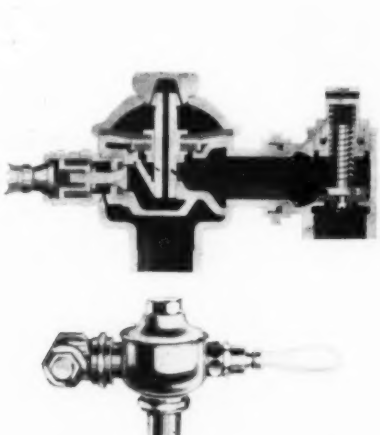

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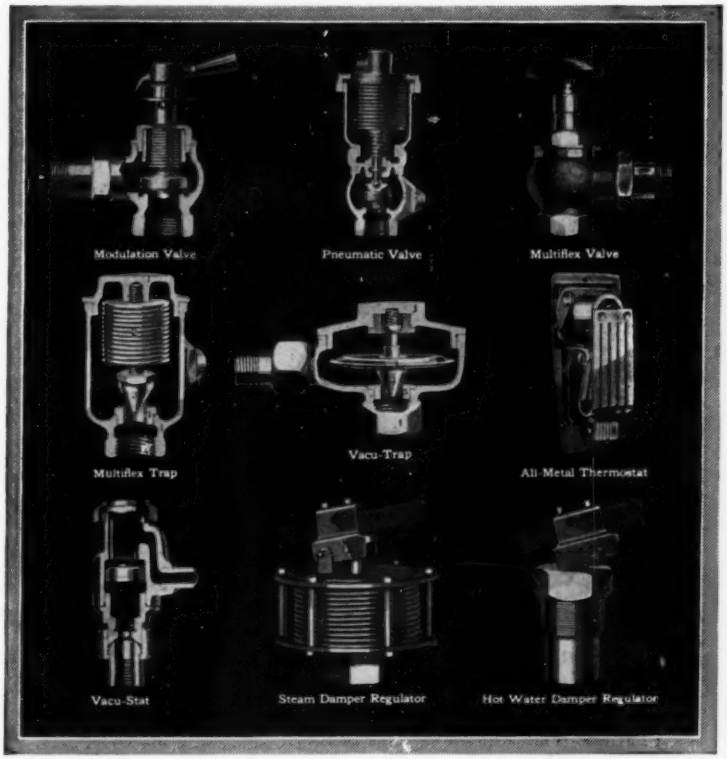


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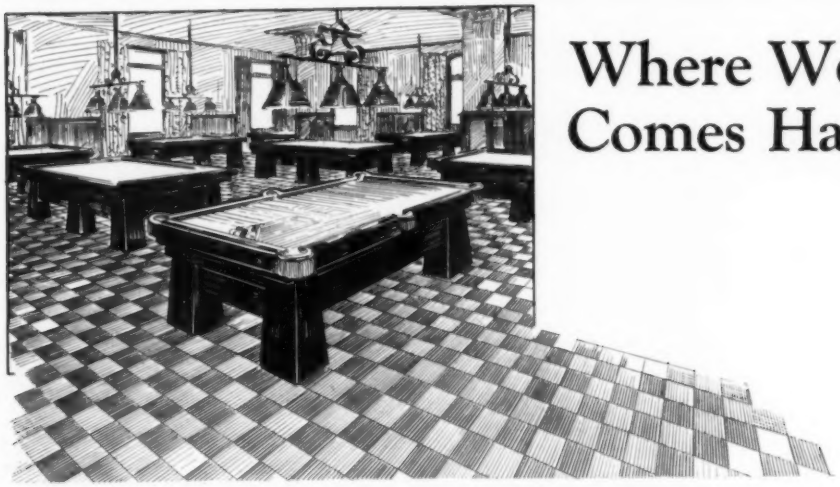

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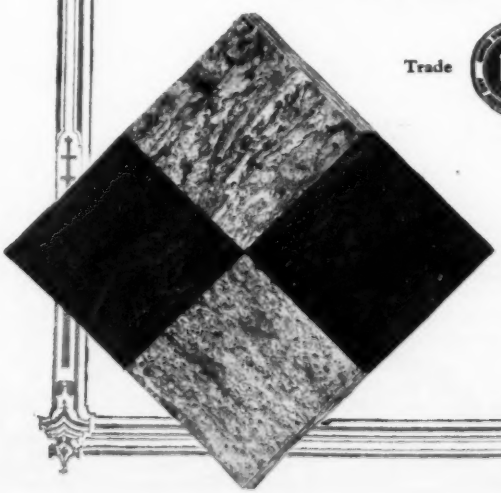

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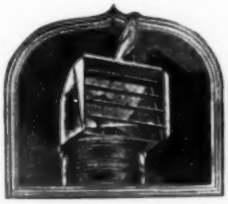

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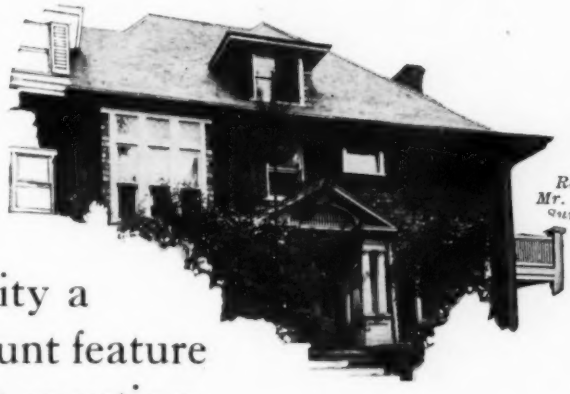

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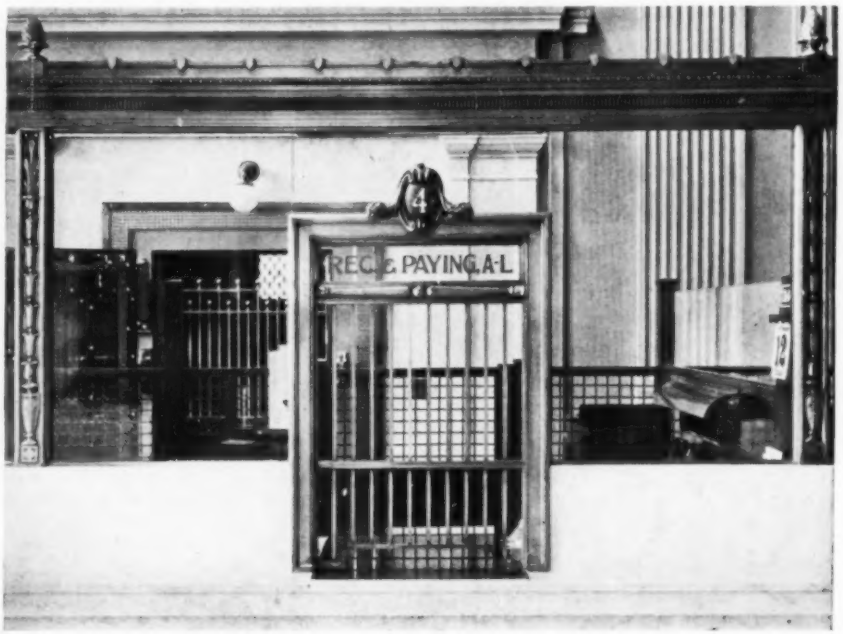


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# BOOK REVIEWS

**Exercise in the Elements of Descriptive Geometry,** by Richard Shelton Kirby, C. E. New York: John Wiley & Sons, Inc. 1922. 10⅛ x 7 in. 49 p. $1.00.

A collection of nearly 900 exercises, supplemented by varied and interesting practical applications. The exercises are devised to be capable of solution within space limits, and have all been thoroughly tried in classes.

It contains: Directions to the Student—Preliminary Drill in Plotting Points, Lines and Planes—Three Fundamental Problems—Problems in the Point, Line and Plane—Practical Applications—Plane Sections—Intersections of Surface.

**The A B C's of Calculus,** by C. C. Carpenter, C. E. Ada, Ohio. Published by the Author. 1922. 4¼ x 6⅝ in. 78 p. $1.50.

"The examples chosen to illustrate the different applications of differential calculus are very practical. They have been made so to impress upon the student the fact that calculus is a very practical and useful science, and that its application is not a very difficult operation." Introduction.

By practical example and illustration, first using purely geometric methods, the author tries to aid the student in calculus to visualize by means of drawing, some of the elementary concepts and distinctions between formulae. The analytic method follows.

The book is intended as an aid, to be used in connection with a text book for the study of calculus, and is intended to make the study of calculus more interesting and easy.

**Le Chateau de Dampierre en Champagne.** The story of Dampierre, and the beginning of the chateau. Paris. Imprimerie de l'Art. 1922. 5⅝ x 7¾ in. 64 p. ills. 4 fr. 50.

On the site of what had been originally a Roman camp, commanding the Bale to Chalons, the chateau was begun soon after Roman occupation and the lord of Dampierre lived in it in 980.

"The old tower, the only monument remaining from that distant period, still dominated the valley at the beginning of the last century."

This brochure, with its sketchy history of a fine mediæval chateau, and its illustration of exteriors and its more modern interiors belonging to the period of Louis XIV to Louis XVI, is very interesting from the decorator's point of view as well as from the point of view of the student of the history of architecture.

**Fundamentals of Mechanical Drawing,** by Professor Richard Shelton Kirby. New York: John Wiley & Sons, Inc. 1922. 89 pages. 10 x 6¾ in. Illus. Cloth. $2.00.

A concise text for the first-year college or technical school course. Three hundred and fifty carefully arranged problems are given.

**Elements of Specification Writing.** Second Edition Revised, by Professor Richard Shelton Kirby. New York: John Wiley & Sons, Inc. 153 pages. 6 x 9 in. Cloth. $1.50.

A textbook on the art of specification writing and a valuable reference book for the young engineer in practice.

**Practice Tablet for Inclined Single-Stroke Freehand Lettering,** by Professor Richard Shelton Kirby. New York: John Wiley & Sons, Inc. 1922. 25 ruled sheets. 5 x 8 in. 35 Cents.

A compact and practical tablet, with a concise analysis of the shapes of letters and numerals, and explicit directions for use.

**Sheet-metal Pattern Drafting and Shop Problem,** by James S. Daugherty. Peoria: Manual Arts Press. 1922. 173 p. illus. ob. 4°. $2.50.

Well printed quarto text book prepared for the use of students in the vocational, trade, technical or high school; also adapted for reference use by draftsmen, shop foremen and metal workers engaged in laying out patterns for general sheet metal work, heating, ventilating, cornice, skylight and heavy plate work. Part one covers drafting principles; part two: parallel line developments; part three: radial developments. Has many illustrations and drawings. The author is on the staff of the College of Industries, Carnegie Institute of Technology, Pittsburgh, Pa.

**The Design of Masonry Structures and Foundations,** by Clement C. Williams. New York: McGraw-Hill Book Co., Inc. 1922. viii, 555 p. illus. 8°. $5.00.

In this work by the Professor of Civil Engineering in the University of Kansas a knowledge of mechanics is assumed on the part of the reader. Extended discussions of disputed theories and of variation in design are purposely avoided. The book covers general principles, masonry laid in mortar, plain concrete, reinforced concrete, arches, dams and sea walls, retaining walls and quay walls, bridge abutments and piers, viaducts and trestles, culverts and underground conduits, bins and chimneys, forms and falsework, foundations on dry ground, open foundations under water, and the pneumatic process of constructing caissons. Attention is given to the architectural appearance of structures.

**The American Architect Specification Manual.** A compilation of specifications of advertised materials and accessories as prepared by representative manufacturers for use by architects and architectural engineers. New York: The Architectural and Building Press, Inc Vol. 4. 1922. Size 8½ x 11 in. xi. 252 p. $2.50.

In an endeavor to assist the person unaccustomed to writing specifications in a methodical manner and the hope that those more hardened to the exigencies of the work might find some additional profit in the manual, new Divisions have been added, namely: The Specification Writer; the Construction of a Specification; and the Rules for Checking Drawings. The Standard Documents of the American Institute of Architects have been included in this edition, their incorporation in previous editions having been generally commended.

The Manual contains:—Index by Manufacturers—Index by Materials—Index by Trade Names—The Specification Writer—The Construction of a Specification—Rules for Checking Shop Drawings—The Writing of Specifications—Preparation of Specifications—Legal Don'ts—Specification Don'ts—Specification Checking List. The Specification Manual subjects are arranged logically according to the progress and variety of the work under construction.

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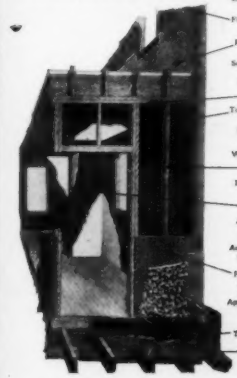
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# RECENT PUBLICATIONS *of* ARCHITECTURAL INTEREST

Under this heading is listed a selection of (1) new catalogues, monographs and reports published by manufacturers, manufacturers' associations, technical societies, educational institutions and government departments, and (2) books on architecture and the allied arts. The manufacturers' publications may be secured by architects from the firms who issue them free of charge except where otherwise noted.

**BOILERS. Bulletin Number 51—"Boiler Practice for Textile Mills."** The Heine Boiler Company, St. Louis, Missouri. 8x10½ in. 32 pp. Illustrated.

**BOILERS, RADIATORS, ETC. "A Complete Line"—Boilers, Radiators and Heating Specialties.** The United States Radiator Corporation, Detroit, Michigan. 2⅝x6½ in. 270 pp. Illustrated.

**CLEANING, VACUUM. Spencer Central Cleaning System.** The Spencer Turbine Company, Hartford, Connecticut. 8½x11 in. 32 pp. Illustrated.

**CLOTHES DRYERS, ETC. Bulletins Number 21, 22 and 23.** Chicago Dryer Company, 2210-2218 North Crawford Avenue, Chicago, Illinois. Illustrated Bulletins. 8x11 in.

**FANS. Buckeye Steel Plate Fans of All Types.** The Buckeye Blower Company, Columbus, Ohio. 6¾x9½ in. 9 plates. Illustrated.

**FIRE EQUIPMENT. Fire Protection for Buildings—Booklet J.** Wirt & Knox Manufacturing Company, Philadelphia, Pennsylvania. 7¼x10½ in. 40 pp. Illustrated.

**FLOORS. "Modern Floors."** Marine Decking and Supply Company, Philadelphia, Pennsylvania. 7¾x10¾ in. 23 pp. Illustrated.

**FLOORS, ETC. The Book of Masterbuilt Floors, Prepared for Architects, etc.** The Master Builders Company, Cleveland, Ohio. Illustrated Bulletins. 8x11 in.

**FLOORING. Stedman Naturized Flooring.** Stedman Products Company, South Braintree, Massachusetts. 6 p. reprint from Sweet's Architectural Catalogue. Illustrated in actual color.

**FLOOR AND ROOF CONSTRUCTION. "Republic Fireproof Construction for Buildings."** Republic Fireproofing Company, Incorporated, 216 W. 32d Street, New York. 8¼x11 in. 28 pp. Illustrated.

**FURNITURE. Danersk Furniture for Executive Offices.** Erskine-Danforth Corporation, 2 W. 47th Street, New York. Illustrated Folder. 8½x11 in.

**FURNITURE. Reproductions of Colonial Furniture.** William Leavens & Company, Incorporated, 32 Canal Street, Boston, Massachusetts. 6x9¾. 12 pp. Illustrated.

**GAS MACHINES. "The Freeport—A Gas Machine With No Regrets."** Freeport Gas Machine Company, Freeport, Illinois. 3¾x8½ in. 16 pp. Illustrated.

**HEATERS, ETC. Catalogue bulletins of Warren, Webster & Company Products.** Warren, Webster and Company, Camden, New Jersey. 8¼x11 in. Loose-leaf system. Illustrated.

**LIFTS, FUEL. Sedgwick Fuel Lifts.** Sedgwick Machine Works, Incorporated, New York. 4¼x8¼ in. 8 pp. Illustrated.

**LIMESTONE. The Indiana Limestone Bank Book. Volume IV. Series B.** Indiana Limestone Quarrymen's Association, Bedford, Indiana. 8¾x11¼ in. 64 pp. Illustrated.

**LINOLEUM—Blabon Art Linoleums—Styles for 1923.** The George W. Blabon Company, Philadelphia, Pennsylvania. 3½x8½ in. 120 pp. Illustrated in color.

**METAL LATH. "Netmesh" Expanded Diamond Metal Lath in Copper and Zinc.** Milwaukee Corrugating Company, 36th Avenue and Burnham Street, Milwaukee, Wisconsin. 6 p. Folder. Illustrated in actual color.

**PARTITIONS. Wilson Rolling Partitions—"Solving the Floor Space Problem."** The J. G. Wilson Corporation, 11 E. 36th Street, New York. Illustrated Folder. 3¼x6¼ in.

**PLASTER, GYPSUM. "How to Get the Best Results From Gypsum Plaster."** The United States Gypsum Company, 205 West Monroe Street, Chicago, Illinois. 3¾x6¾ in. 32 pp. Illustrated.

**PLUMBING WARE, ENAMELED. Catalogue F. of Kohler Enameled Plumbing Ware.** Kohler Company, Kohler, Wisconsin. 7⅞x11 in. 216 pp. Bound in boards. Illustrated.

**PUMPS, CENTRIFUGAL. Bulletin 249 of the** Dayton-Dowd Company, Quincy, Illinois. 7½x10½ in. 32 pp. Illustrated.

**RANGES. Bulletin 308 of Perfect Ranges.** Richardson and Boynton Company, 260 Fifth Avenue, New York. 8x10½ in. 28 pp. Illustrated.

**REGULATORS. "Sarco Temperature Control."** Sarco Company, Incorporated, Woolworth Building, New York. 6x9 in. 8 pp. Illustrated.

**SASHES, STEEL. Truscon Steel Sash.** Truscon-Steel Company, Youngstown, Ohio. 8½x11 in. 80 pp. Illustrated.

**SHEATHING. Clinton Welded Sheathing—a Combination of Clinton Electrically Welded Wire and Asphalt Felt—a Wire Reinforcement for Stucco or Plaster. Wickwire** Spencer Steel Corporation, Worcester, Massachusetts. 6x9 in. 12 pp. Illustrated.

**STUCCO. Portland Cement Stucco.** Portland Cement Association: Offices in Principal Cities. 8½x11 in. 16 pp. Illustrated.

**TERRA COTTA. Luca della Robbia, Volume V, Number VII of Series.** Atlantic Terra Cotta Company, 350 Madison Avenue, New York City. 8½x11 in. 20 pp. Illustrated.

**WARDROBES. Wilson Hygienic Wardrobe.** The J. G. Wilson Corporation, 11 East 36th Street, New York. Illustrated Folder. 3¼x6 in.

**WATER HEATERS. Catalog M. Wilks Water Heaters, Garbage Burners and Steel Tanks.** S. Wilks Manufacturing Company, 3517-3539 Shields Avenue, Chicago, Illinois. 6x9 in. 28 pp. Illustrated.

Sanymetal in St. Joseph's School, Cleveland. Chas. R. Greco, Arch.

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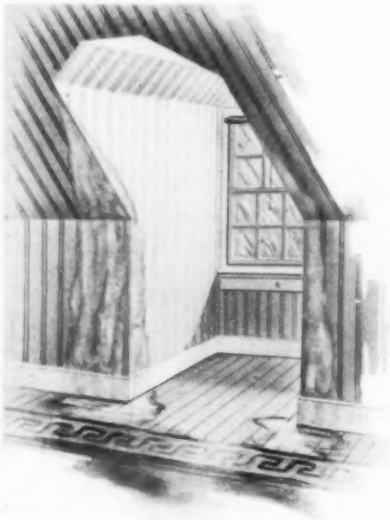

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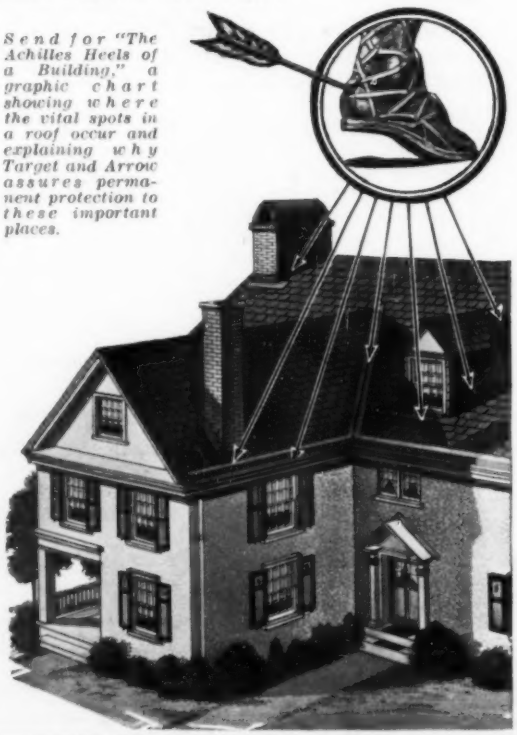

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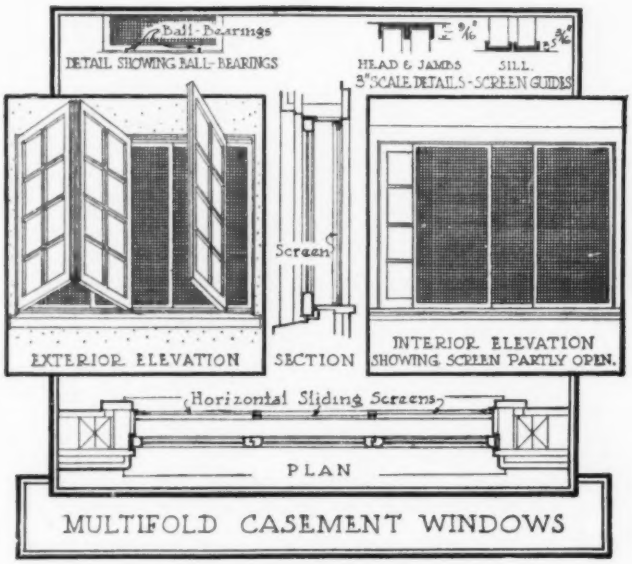


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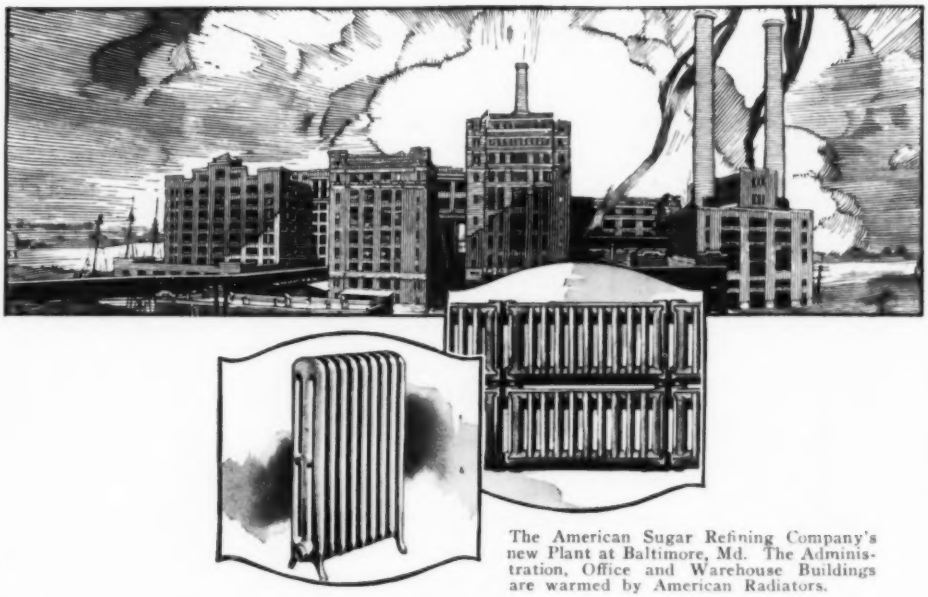

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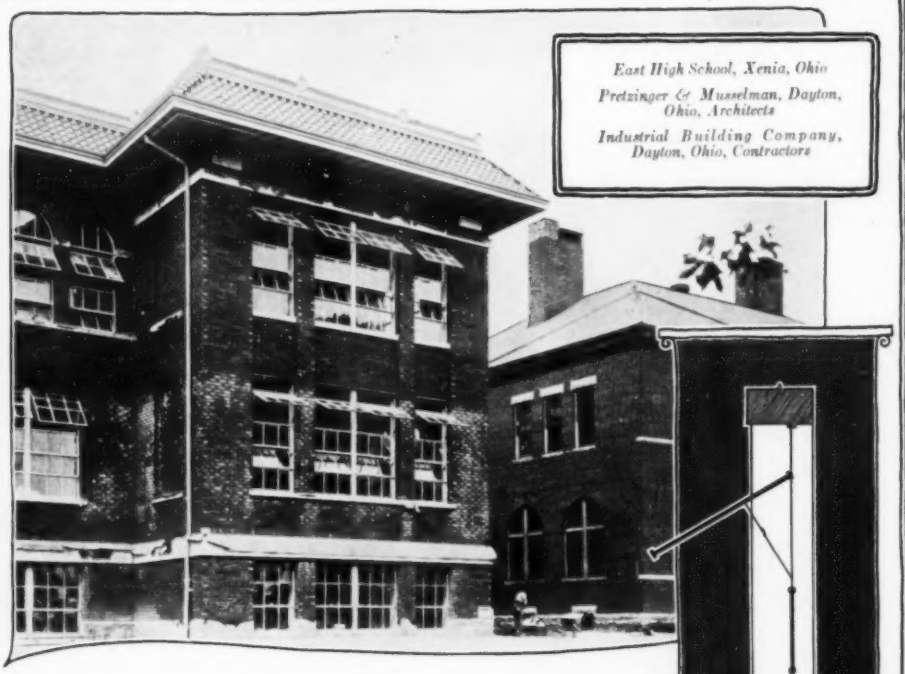

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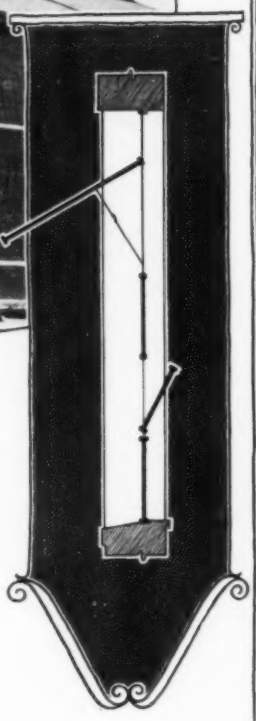

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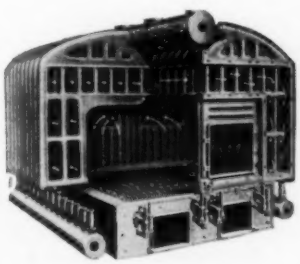
The Hadleigh Apartments are heated by a battery of three No. 60 Smith Steam Boilers with Smokeless furnaces.

The No. 60 Smith Boiler with Smokeless Furnace by its construction enables all volatile gases to be completely ignited, thereby preventing smoke, which results in economy for the owner and comfort for the tenants and neighbors.

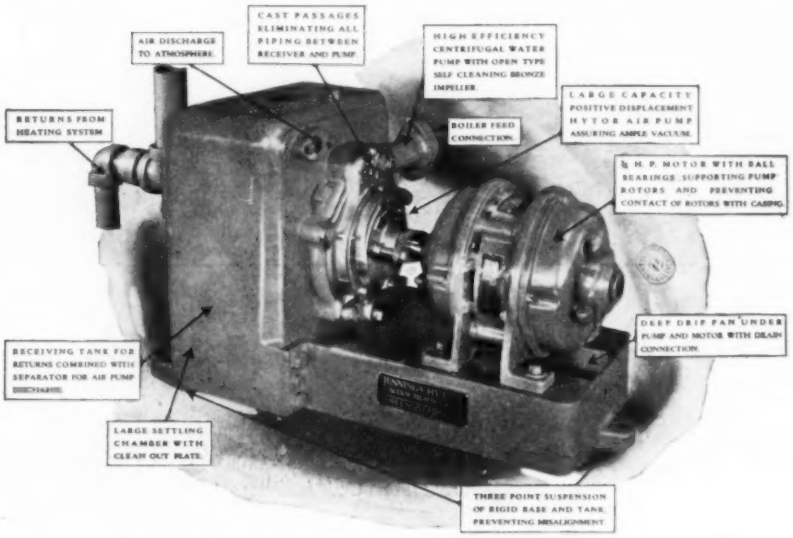


BOILERS & RADIATORS

THE H·B·SMITH CO.

NEW YORK PHILADELPHIA
BOSTON WESTFIELD

# THE COAL SITUATION
## DEMANDS EFFICIENT HEATING
### EFFICIENT HEATING DEMANDS
## THE JENNINGS PUMP


CAST PASSAGES ELIMINATING ALL PIPING BETWEEN RECEIVER AND PUMP.
AIR DISCHARGE TO ATMOSPHERE.
HIGH EFFICIENCY CENTRIFUGAL WATER PUMP WITH OPEN TYPE SELF CLEANING BRONZE IMPELLER.
RETURNS FROM HEATING SYSTEM.
LARGE CAPACITY POSITIVE DISPLACEMENT HYTOR AIR PUMP ASSURING AMPLE VACUUM.
BOILER FEED CONNECTION.
½ H. P. MOTOR WITH BALL BEARINGS SUPPORTING PUMP ROTORS AND PREVENTING CONTACT OF ROTORS WITH CASING.
DEEP DRIP PAN UNDER PUMP AND MOTOR WITH DRAIN CONNECTION.
RECEIVING TANK FOR RETURNS COMBINED WITH SEPARATOR FOR AIR PUMP DISCHARGE.
LARGE SETTLING CHAMBER WITH CLEAN OUT PLATE.
THREE POINT SUSPENSION OF RIGID BASE AND TANK, PREVENTING MISALIGNMENT.

Now is the time to prepare your heating facilities to meet the conditions of the coming winter.

The installation of a Jennings Return Line Pump in connection with your system means quick heat in the morning, at the most isolated radiators, and in zero weather. It means a positive control of heat at all times and the elimination of radiator noises. It means an economy in fuel, that, according to our customers, makes this piece of equipment a real dividend paying proposition.

Jennings Pumps are made for any size installation. The small unit here illustrated has ample capacity of 5,000 sq. ft. of equivalent direct radiation. Because of simplified design, in connection with quantity production, this outfit is being sold at a price never before possible in a pump of this capacity.

The pump incorporates all of the high grade workmanship and material characteristic of our Jennings equipment. It is equipped with solid bronze air rotor, rotor housing, water impeller and shaft.

In this unit all piping complications have been removed, and it is only necessary to make three connections:

1. The return main. 2. The water discharge. 3. The air discharge.

While the new compact "M" type is furnished in one size, our well known Jennings Pumps in separate tank design, as recommended for larger capacities, are furnished for any size installation.

Many thousands of these pumps have been installed and have given universal satisfaction.

**NASH ENGINEERING CO.**
SO. NORWALK, CONN., U. S. A.

NASH ENGINEERING CO. SOUTH NORWALK, CONN. U. S. A.
Please send graphic device also bulletins covering
☐ Hytor Air Compressors ☐ Return Line Heating Pumps
☐ Hytor Vacuum Pumps ☐ Boiler Feed Pumps
Name.....
Address.....
Company.....
Position.....
Dec.

Photograph taken after the two panels had been handled for several days.

We shall be glad to send a set of panels — one painted with Barreled Sunlight and the other with a high grade flat or egg-shell finish paint — for your own test purposes.

# His friends made this test for him

## *It showed why he had to repaint interiors so often*

HE was about to repaint again. On his desk were two wooden panels—one painted with flat finish white paint, the other with Barreled Sunlight.

His friends picked them up and inspected them.

At the end of several days their fingermarks had covered the flat finish paint with dirt. The panel painted with Barreled Sunlight remained clean white.

This test shows why walls and woodwork coated with flat or egg-shell finish paint require frequent repainting.

The surface of such paints is not smooth but actually rough and porous—full of tiny microscopic holes which collect dust and dirt. Surfaces coated with these paints can never be thoroughly cleaned. Water simply smudges much of the dirt still deeper into these pores.

Save the surface and you save all

Barreled Sunlight—the Rice Process White—is a pure white, lustrous oil paint. Its smooth, unbroken surface is highly resistant to all forms of dust and dirt. Even when soiled after years of service it can be washed clean like tile.

Made by our exclusive process, Barreled Sunlight is guaranteed to remain white longer than any gloss paint or enamel, domestic or foreign, applied under the same conditions.

Flows easily from the brush. Will not clog a spray as it contains no varnish. Sold in barrels and in cans. Where more than one coat is required, use Barreled Sunlight Undercoat.

Send for specifications.

U. S. GUTTA PERCHA PAINT CO.

*Factory and main offices*
22 DUDLEY ST. PROVIDENCE, R. I.
New York—350 Madison Ave.
Chicago—659 Washington Blvd.
San Francisco—38 O'Farrell St.
And 50 other distributing centers in U. S. A.

*See our catalog in Sweet's pages 1244-1246*

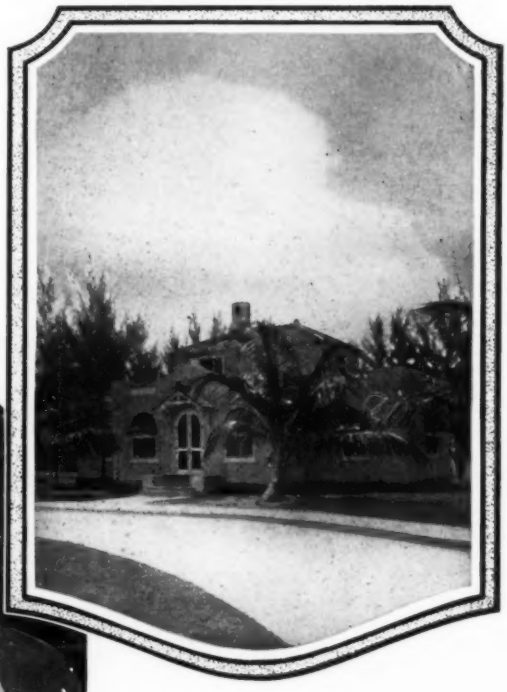
# Barreled Sunlight

THE RICE PROCESS WHITE

# CLINTON

TRADE MARK REG. U.S. PAT. OFF.

## Welded Sheathing



A distinctive lathing material which acts not only as a plaster support but actually reinforces and provides a damp proof sheathing. It possesses decided advantages for wall and ceiling construction, and for a light reinforcement for concrete floors and roofs. Economy and efficiency in construction have given this material recognized standing in the construction field.

The use of Clinton Welded Sheathing will result in a large saving of plaster, while the resulting construction will be superior to that obtained by ordinary methods.

WICKWIRE SPENCER STEEL CORPORATION

41 East 42nd Street, New York

Worcester Buffalo Detroit
Chicago San Francisco

## Modern Hospitals *demand* Good Hardware

THE requirements are exacting. Doors must close noiselessly—always. Locks must work smoothly—always. Every piece of hardware must function faultlessly at all times. Good Hardware—and only Good Hardware—can qualify for hospital service.

Through close contact with architects and hospital authorities, it has been our privilege to develop certain special hardware for hospitals, asylums and sanatoriums, and to work out elaborate master keying systems to exactly fit the needs of the institution.

We have really become specialists in equipping hospitals, and welcome the opportunity to give you personal service, through our representatives, in the hospital work which you are engaged in.

P. & F. CORBIN SINCE 1849 NEW BRITAIN CONNECTICUT

*The American Hardware Corporation, Successor*

NEW YORK CHICAGO PHILADELPHIA

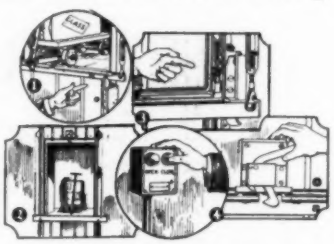
The Atlantic Macaroni Co. Building
King & Campbell, Architects
White Construction Co., Builders

## What architects should know about Peelle Doors!

PEELLE DOORS are the highest type of freight elevator doors made. Their counterbalanced construction insures long service and greater efficiency. The vertical operation permits full clearance for loading and unloading. The exclusive truckable feature insures safety of trucking into and out of elevator. They bear the label of the Underwriters Laboratories.

Besides being installed in the Atlantic Macaroni Building, PEELLE FREIGHT ELEVATOR DOORS are installed in hundreds of other buildings throughout the country. Architects of experience and repute specify PEELLE when freight elevator enclosures are required.

The PEELLE Catalog tells in detail all that architects should know about PEELLE DOORS. Send for it, without obligation.



1. *Exclusive truckable features insures smooth trucking.*
2. *Vertical operation allows full clearance.*
3. *Durable, Counterbalanced Construction.*
4. *Operated by hand or electricity.*

# PEELLE Freight Elevator DOORS

***Counterbalanced-Truckable***

THE PEELLE COMPANY · · · Brooklyn, N. Y.
Boston · Cleveland · Philadelphia · and 12 other cities

*The HOTEL AMBASSADOR, Los Angeles: Myron Hunt, Architect; N. O. Nelson, Mfg. Co., Jobber; Arthur Hess, Plumber*

# KOHLER

## *And* The HOTEL AMBASSADOR

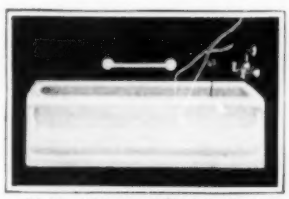
Sweeping vistas of spacious lawns and luxuriant gardens are afforded to every guest by the striking plan of the new *Hotel Ambassador*, Los Angeles.

Naturally, no less care was expended by the architects to insure in every interior detail a perfection of appointments in keeping with this admirable scenic setting.

The selection of Kohler "Viceroy" Built-in Baths for the *Hotel Ambassador's* 351 bathrooms aptly confirms the judgment of architects, plumbers, and builders everywhere in their customary choice of Kohler Enameled Plumbing Ware and in their appreciation of its durability, its utility, and the uniformity of its glistening, snow-white beauty.

* * *

The new Kohler Catalog F, just published, is a valuable handbook of the latest developments in fine plumbing ware. If you have not already received your copy, please write us on your business stationery.



Kohler "Viceroy" Built-in Bath
*Recess Pattern*

## KOHLER OF KOHLER

Kohler Co., *Founded 1873*, Kohler, Wis.
*Shipping Point*, Sheboygan, Wis.
BRANCHES IN PRINCIPAL CITIES

MEMBERS OF THE NATIONAL TRADE EXTENSION BUREAU OF THE PLUMBING & HEATING INDUSTRY REGISTERED

MANUFACTURERS OF ENAMELED PLUMBING WARE AND KOHLER AUTOMATIC POWER AND LIGHT 110 VOLT D.C.

# The ARISTON

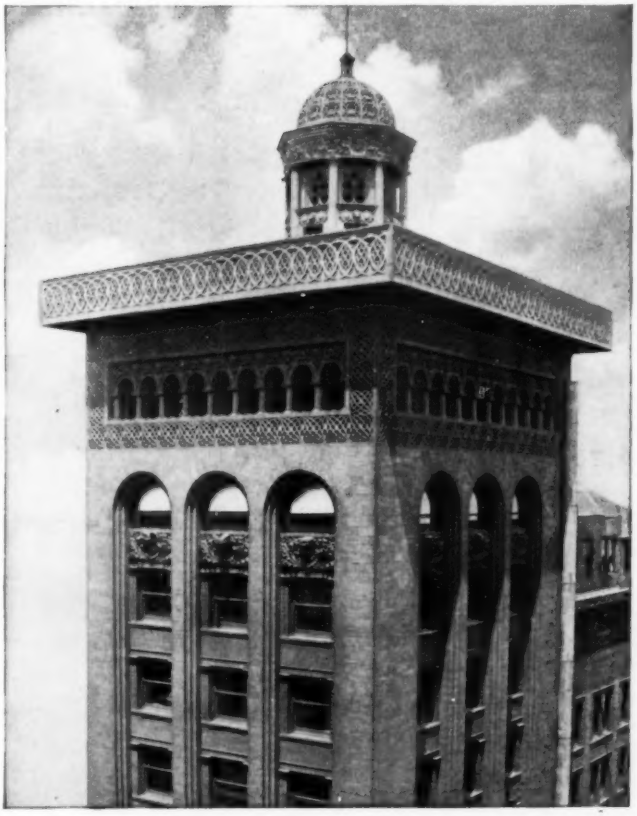
Vitreous China will outlast any other material from which plumbing fixtures can be made. Hence, doesn't it seem good business to specify Vitreous China fixtures in order that the clients' satisfaction may be LASTING?

SPECIFICATION:

ARISTON H-2900 White Vitreous China Silent Action Syphon Jet Closet, with extended Top Inlet, Floor Outlet and 2-inch Brass Spud. Extended Front Lip and Cut-back Sanitary Rim flushed all the way around. Water surface in bowl to be not less than 14x10-inch. Fitted with white Celluloid-covered Seat, no Cover, Open Front and Back, One-piece Vitreous China Flush Pipe Cover and White Vitreous China Bolt Caps. To be flushed with Madora H-3112 White Vitreous China Low-down Tank and Cover with Under-pull Lever and Maddock guaranteed fittings.

## THOMAS MADDOCK'S SONS CO.

**TRENTON, N. J.**



*Garrick Theatre (formerly Schiller Theatre) Building, Chicago, Illinois. Adler & Sullivan, Architects. Gray unglazed Terra Cotta throughout. Erected 1891. Photograph taken 1922.*

# *A* TEST *of* 31 YEARS

ERECTED in 1891 this building attests the enduring qualities of Terra Cotta under conditions of climatic exposure affording the severest trial. Proper detailing of Terra Cotta and its intelligent relation to other materials will always assure this result.

Note, also, how the size of the individual units of the Terra Cotta is in scale with the general proportions of the building.

Seventy typical plates showing correct detailing for Terra Cotta will be sent on request. Address **National Terra Cotta Society,** 19 West 44th Street, New York, N. Y.

# TERRA COTTA

*Permanent* *Beautiful* *Profitable*

# REASONS FOR FISKE BRICK

**For its appearance, because it is dignified and beautiful.**

**For its atmosphere, because it is sincere and hospitable.**

**For its utility, because it is safe and permanent.**

**For its comfort, because of its warmth and dryness.**

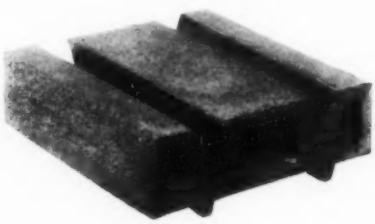
**For its economy, because its upkeep is practically nothing.**

## FISKE & COMPANY

**Incorporated**

"TAPESTRY" BRICK
Reg. U. S. Pat. Off

"FISKLOCK" BRICK
Reg. U. S. Pat. Off.



NEW YORK BOSTON WATSONTOWN, PA.

# "Taking Pen in Hand–"

I might as well admit it! I don't know how to write ads—but I do know the plumbing business. The fellow who used to write our ads didn't know the plumbing business, so he just strung words like "quality" and "service" together and tacked our name on the end.

That isn't my idea of advertising. To me, advertising is just *writing* to the people I can't meet personally.

I want our ads to tell our story the way I tell it myself.

Therefore—I'm going to write some myself.

When I can get a plumber in our shop I don't have much trouble selling him on the advantages of Clow plumbing—what he *sees* does that for me.

But there are a lot of plumbers I can't bring to the shop. Therefore, I'm going to bring the shop to them.

I'm going to try my hand at writing an illustrated serial story! A personally conducted trip through our shop—from receiving room to the shipping platform.

Instead of saying that "Clow plumbing saves money on installation costs," I'll show you a picture of a man with an air chipping hammer, squaring up a tub to architect's detail, so that it will fit the opening like a foot in an old shoe.

Instead of talking about the "superior quality" of our brass goods, I'll take you through our brass shop, and leave it to you to judge.

I think this series will be worth reading. But, as I said, I'm no hand with the pen, and I'll be eternally grateful for suggestions.

J. B. Clow, Jr.

JAMES B. CLOW & SONS

*General Offices:* 534-546 S. Franklin Street, Chicago

*Sales offices in the principal cities*

CLOW

*Southwestern High School, Fort Street, Detroit, Michigan*
*Architects, Malcomson, Higginbotham and Palmer, Detroit*

FIFTY grade schools and nine high schools in Detroit are Carey roofed. Certainly this newest high school would not have a Carey roof if the fifty-eight others were not giving satisfaction.

They will give you the satisfaction they are giving Detroit.

There are Carey Asbestos and Asphalt built-up specifications for flat and irregular surfaces and Asfaltslate Shingles for exposed steep surfaces.

Write for Carey Architects Specification Book.

**THE PHILIP CAREY COMPANY**
**506-526 Wayne Ave., Lockland, Cincinnati, Ohio**
*Branches and Distributors in Sixty Leading Cities*

Carey
REG. U.S. PAT. OFF.
BUILT-UP ROOFS

18-A

*First Nat'l Bank Bldg., Omaha, Neb.* *Architects—Graham, Burnham & Co.*

# JOHNS-MANVILLE
## Asbestos Roofing

THE difference in duty between a length of pipe covering and a strip of roofing is a broad one.

But when these materials are united by an unusual service to architects under the same manufacturer's name—Johns-Manville—it is not strange that this name appears many times in one set of specifications. In specifications for a building such as that above, it might well precede each of the following:—

Asbestos Roofing, Wall Insulations, Acoustical Correction, Pipe and Boiler Insulations, Steam Traps, Radiator Traps, Industrial Flooring, etc.

If you wish particulars on any or all of the above products, write to:—

JOHNS-MANVILLE, Inc.
Madison Ave. at 41st St., N. Y. C.
*Branches in 56 Large Cities*

*Any Johns-Manville Asbestos Roofing will withstand the white hot flame of a plumber's blow-torch.*

# IN ZERO WEATHER

F. W. Cook Building
Fargo, N. Dak.
Architects:
Ashelman and Gage
Built with Berloy Metal Lumber when thermometer stood at from 10° to 20° below zero.

*Metal Lumber Joist*

## No Uncertainties

**All winter construction uncertainties and time consuming, expensive provisions against freezing disappear when Metal Lumber construction is used. Extensive storage space, elaborate elevating apparatus, form work and big gangs of men are also eliminated.**

**Metal Lumber is one man material—easily handled—goes into place rapidly in any weather.**

**The joists can be placed as the walls go up and the concrete work can be done in the enclosed building.**

**Metal Lumber will save weeks of time and thousands of dollars on any large structure of light occupancy requirements such as Apartments, Schools, Office Buildings, etc. It is a proven, fireproof, permanent construction. Full information and designing data are yours on request. Our engineers are at your service. Please address nearest Berger Office, Department L-9.**

Ⓑ BERLOY

## The Berger Manufacturing Co.

Canton, O., Boston, New York, Philadelphia, Chicago, St. Louis, Kansas City, Minneapolis, San Francisco, Los Angeles, Dallas, Roanoke, Jacksonville

# BERLOY
## METAL LUMBER

MILLER

## MAHOGANY, ALWAYS BEAUTIFUL—EVERYWHERE

YOUR mind often reverts to Mahogany for interior woodwork in banks, club houses, hotels, business offices and mansions. But have you considered the applicability of Mahogany for the small home and the bungalow?

Contributing an air of refinement and luxury to the home, Mahogany adds to the permanent value of the investment at a cost astonishingly small, when beauty and durability are taken into consideration.

When the ten-thousand-dollar "Bungalow Beautiful" was erected at Atlantic City, careful costs were kept and it was ascertained that the actual cost of Genuine Figured Mahogany trim in living room, dining room and den was $880. This was only $80 more than the rooms would have cost trimmed in Poplar or $20 more than Oak.

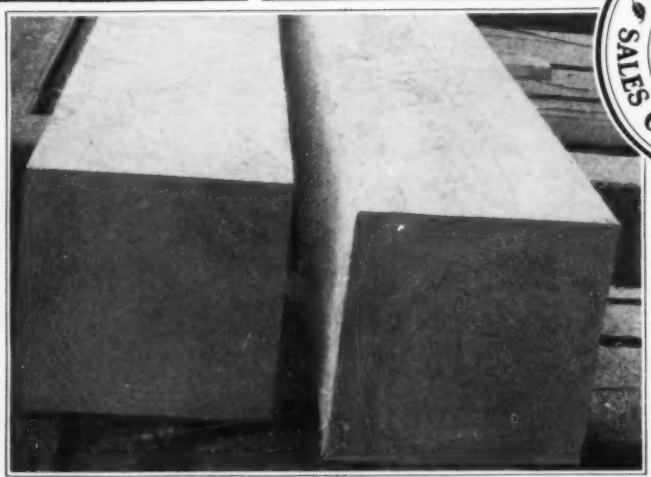
The next time you are receiving figures on a contract, ask for an alternate bid in **Genuine Mahogany** and write to the Mahogany Association, Inc. for facts and figures on this beautiful, durable, ***economical*** wood.

Genuine Mahogany for every purpose is always easily obtainable, and at a price so little above the less beautiful cabinet woods that its use is a real and practical economy.

***after all—there's nothing like***

# MAHOGANY

**MAHOGANY ASSOCIATION, Inc. St. James Building 1133 BROADWAY, NEW YORK**




EXCHANGE SAWMILLS SALES COMPANY — ESSCO — LUMBER PRODUCTS

*Dense Durable Dependable*

# Engineering Tests Again Demonstrate Superiority of Southern Pine

In the series of tests just completed by the Testing Laboratories of the Department of Civil Engineering at Columbia University, Long Leaf Southern Pine again emerged the victor. The result of the tests is summed up in the following concise table:

| | Longleaf Pine | Shortleaf Pine | Loblolly Pine | Coast type Douglas Fir |
|---|---|---|---|---|
| Strength as beam or post | 100.0 | 84.0 | 83.5 | 85.0 |
| Compressing 1 grain (flatwise) | 100.0 | 80.0 | 92.0 | 88.5 |
| Shearing // grain | 100.0 | 83.0 | 84.0 | 85.0 |
| Shock-resisting ability | 100.0 | 90.0 | 91.0 | 77.0 |
| Stiffness | 100.0 | 82.0 | 85.5 | 100.0 |
| Hardness | 100.0 | 85.5 | 80.0 | 78.0 |
| Weight (green) | 100.0 | 100.0 | 108.0 | 80.0 |
| Weight (air dry) | 100.0 | 90.5 | 90.5 | 80.0 |

HEART PINE — ESSCO — Kansas City, U.S.A.

*We are manufacturers of the famous ESSCO Heart Flooring for homes, office buildings, factories, etc. Each bundle is identified with the Heart Label.*

The holdings of Exchange Sawmills Sales Company are all in that belt in Louisiana where Longleaf Southern Pine grows to its best. Southern Pine, the wood of a thousand uses—is available in any shape or size, is known for its workability, and can be secured at a reasonable cost. We give particular attention to items used in home building.

**LONG and SHORT LEAF SOUTHERN PINE**

**Yard and Shed Stock** **Heavy Structural Material**

## EXCHANGE SAWMILLS SALES CO.

**Long Building** **Kansas City, Mo.**

(Formerly Missouri Lumber & Land Exchange Co.)

**R. B. WHITE, President and General Manager**

**F. R. WATKINS**
**Secretary and Manager Yard Sales**

**R. S. PRICE**
**Manager Railroad and Timber Sales**

# *Are you facing a perplexing paint problem?*

IF so, our Paint and Varnish Advisory Board may help you materially. Its services are gratis and a request for them places you under no obligation whatsoever. It is composed of men who know both the technical and practical sides of the paint business—men whose experience has taught them to study the problems laid before them, both from the standpoint of chemical composition and that of economical and lasting results.

You can avail yourself of this service merely by asking for it. At your request, one of our representatives, or, if necessary, a member of the Advisory Board will consult with you. A complete investigation and written report on your problem will follow.

The Advisory Board frequently gives suggestions as to methods and products to be used for producing new finishes in homes, public buildings or industrial plants, and points out the most economical way of securing desired effects.

We will gladly send you demonstration panels made up according to your own specifications.

*In every Pittsburgh Plate Glass Company warehouse there are glass experts who may be of assistance to you.*

**PITTSBURGH PLATE GLASS CO.**

**GLASS** - Manufacturers - **PAINT**

Paint and Varnish Factories — Milwaukee, Wis. - Newark, N.J.

*May we suggest that you preserve this advertisement for future reference.*

*Residence of S. S. Beman, Winnetka, Ill. Celotex used for insulation on all walls and roof under exterior finish*

**Save 25% to 35% in fuel costs**

**A WOOLEN BLANKET or A COTTON QUILT— *WHICH?***

**Wisely we sleep beneath a woolen blanket in preference to a cotton quilt in the cold winter months because it retains the heat of the body and makes for comfort and sound sleep.**

**When Celotex Insulating Lumber is applied in the construction of the walls and roof of a home it blankets the interior so that cold will not penetrate it, assuring a more even temperature throughout, stopping heat losses, and saving 25% to 35% in fuel costs.**

**Insulation to a building is what a woolen blanket is to the body. It keeps the heat where you need it.**

**Celotex Insulating Lumber made from cane fibre is the strongest board form insulation on earth. You can use it for sheathing, replacing lumber, a a plaster base, eliminating lath or for sound-deadening purposes.**

**Insulation principles and its functions in building construction is rapidly gaining recognition as a fundamental factor by architectural and contracting authorities throughout the United States.**

***There is a use for Celotex in every building.***

**Write for detailed information to Dept. 12-B**

**THE CELOTEX COMPANY**

**CONWAY BLDG. CHICAGO**

*PLANT—NEW ORLEANS*

CELOTEX INSULATING LUMBER

*is 7-16 in. thick, 4 ft. wide, 8 ft. to 12 ft. long. Wt. approx. 60 lbs. per 100 square feet.*

# CELOTEX

INSULATING LUMBER

Use PLATE Glass ©

# A mirror for balance

IS there a true lover of artistic achievement in home design who doesn't love the enchanting illusion of the mirrored door? First the subterfuge of a puzzled architect, but now the artifice of artistic effect in planning interiors.

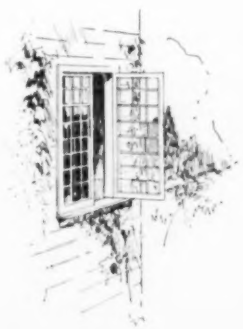
Seemingly something that it isn't, the mirrored door may add a witching air of mystery. It may hold the secret of balance essential to a restful room. It may compensate a window or a door or break the tiresome space of blank walls.

A mirror is something more than merely an article of furniture to be hung up. Considered in the building of house or apartment, and in the hands of a skillful artist, it may play an important part in the architectural scheme.

If you are building, have your architect specify plate glass mirrors in bedroom doors, closet doors, bathroom doors, medicine-cabinet doors, over the mantel and paneled French doors.

Ask your architect, too, about plate glass in the windows. A well-designed house, the pride of its owner and builder, deserves nothing less than plate glass in its windows. Its beautifully polished surfaces and crystal clearness make all the difference in the world in the external appearance of the house. Yet the difference in cost between plate glass and common sheet glass is surprisingly small. Get comparative figures from any glazing contractor or builder.

**PLATE GLASS MANUFACTURERS *of* AMERICA**

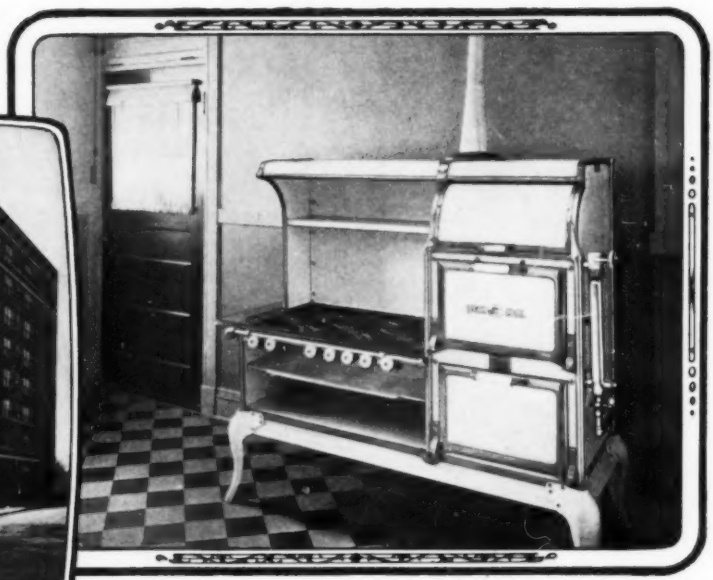


*Genuine*
**PLATE GLASS**
MADE *in* U.S.A.

**Nothing Else is Like it** ©

*Plate Glass is best for:*
Hotel, Office-Building and House Windows
Windshields
Closed Car Windows
Desk Tops
Table Tops
Window Ventilators

Exterior and Representative Kitchen of the Chase Apartments, St. Louis, Mo., P. J. Bradshaw, St. Louis, Mo., Architect. Kitchens throughout equipped with Quick Meal Gas Ranges with Lorain Oven Heat Regulators.



*One easy turn of the Lorain Red Wheel gives the housewife a choice of 44 measured and controlled oven heats for any kind of oven cooking or baking.*

# *One Way for Architects to Please Apartment House Builders*

THE man that builds an apartment house Today depends upon the architect for expert advice regarding the installation of the most modern and practical equipment.

The reason is obvious. Builders and owners realize that if their buildings have the latest labor-saving equipment for women, suites are rented much more readily. In addition, the suites are more apt to retain their tenants with a greater degree of permanency.

Architects are now specifying gas ranges equipped with the celebrated Lorain Oven Heat Regulator for apartment houses because they know that these stoves make instant appeal to housewives. They save time and labor. They also save food and fuel.

They make it possible for the housewife to be away for the entire afternoon while the evening meal (meat, vegetables and dessert) is being cooked with perfect results. When she returns at 6 p. m., say, the entire meal is ready to be placed on the table.

Lorain-equipped Gas Ranges are used in thousands upon thousands of homes, churches and apartment houses—and are used for instruction purposes in hundreds of schools and universities. There are types and sizes for all requirements. Catalogs and detailed information on request.

**AMERICAN STOVE COMPANY**

*Largest Makers of Gas Ranges in the World*

**1812 Chouteau Avenue** **St. Louis, Mo.**

**Only these six famous makes of gas stoves are equipped with the Lorain Oven Heat Regulator:**

NEW PROCESS
RELIABLE
DANGLER
QUICK MEAL
DIRECT ACTION
*and* CLARK JEWEL

# LORAIN
## OVEN HEAT REGULATOR

# Low Cost Firesafe Floors

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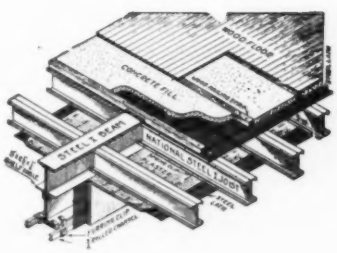


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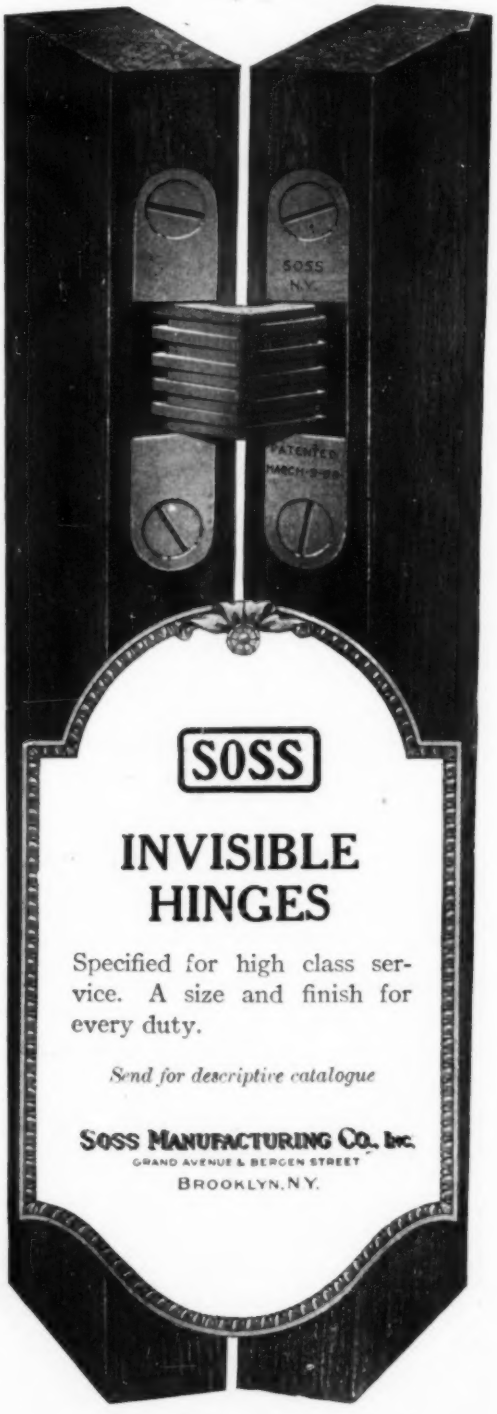


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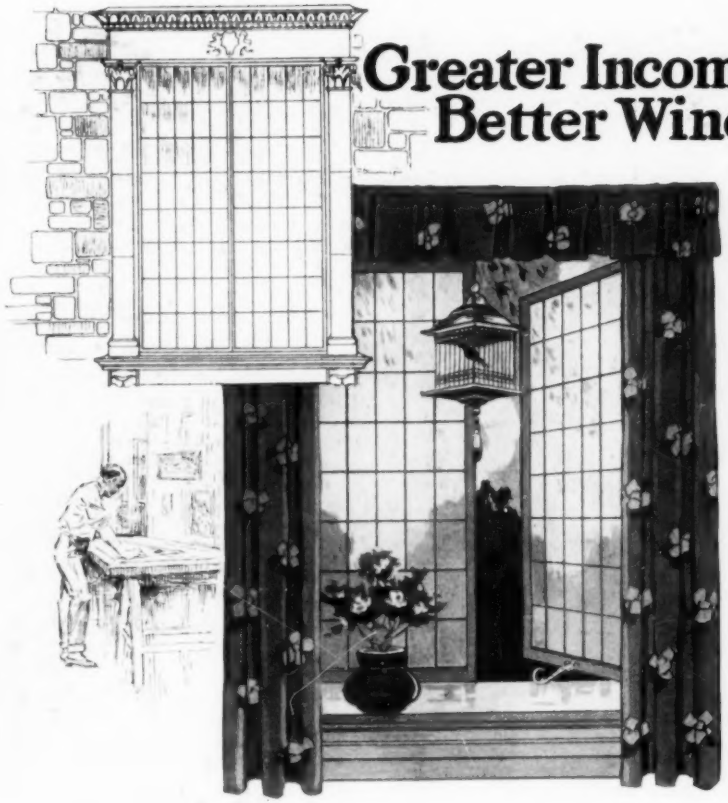

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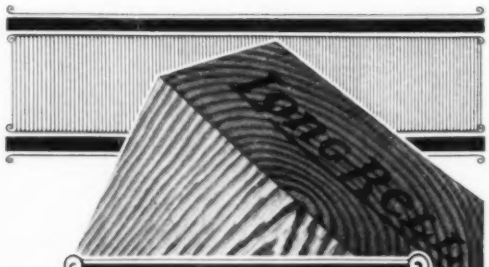


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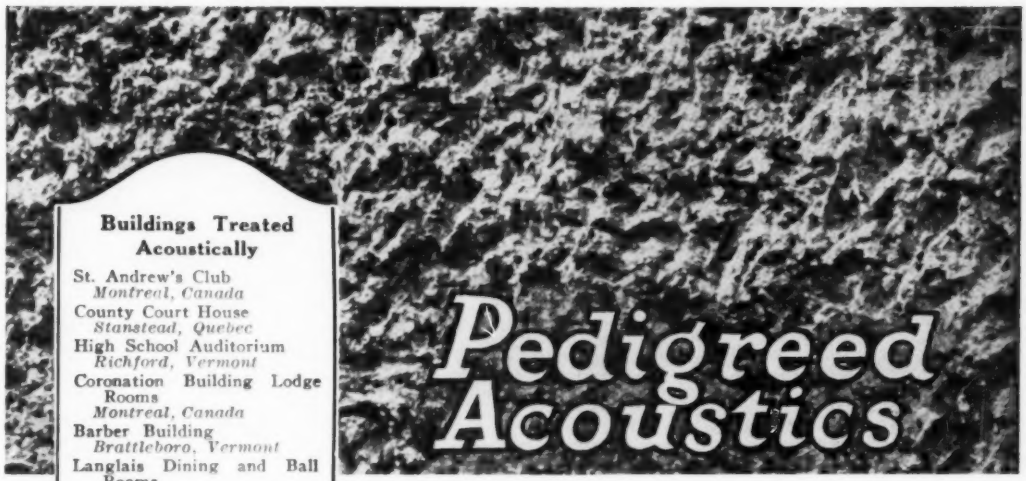

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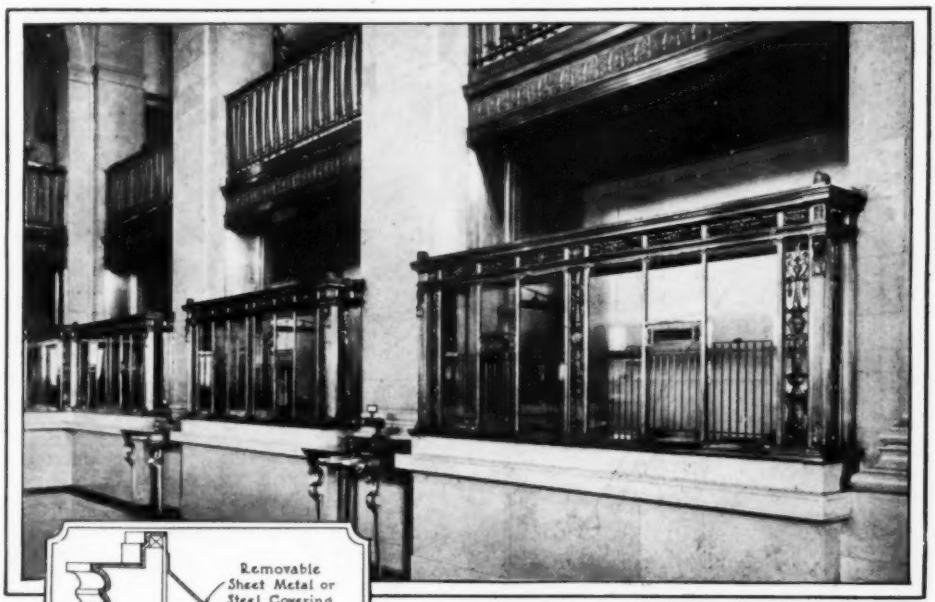
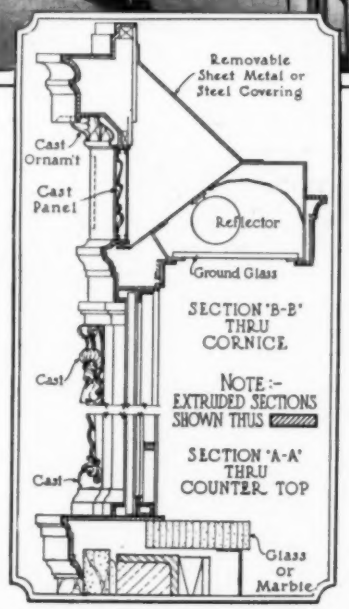


*Counter Screen of the Astor Trust Company, New York. Charles E. Birge, Architect. Fabricated by the Gorham Company from Anaconda extruded architectural bronze.*

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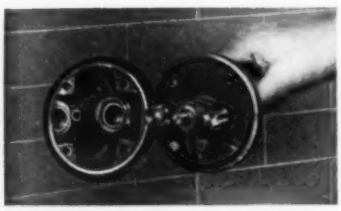

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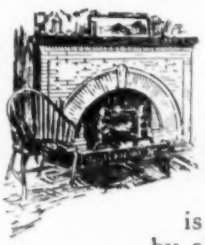

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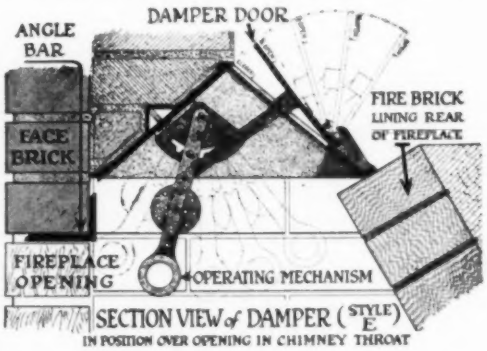


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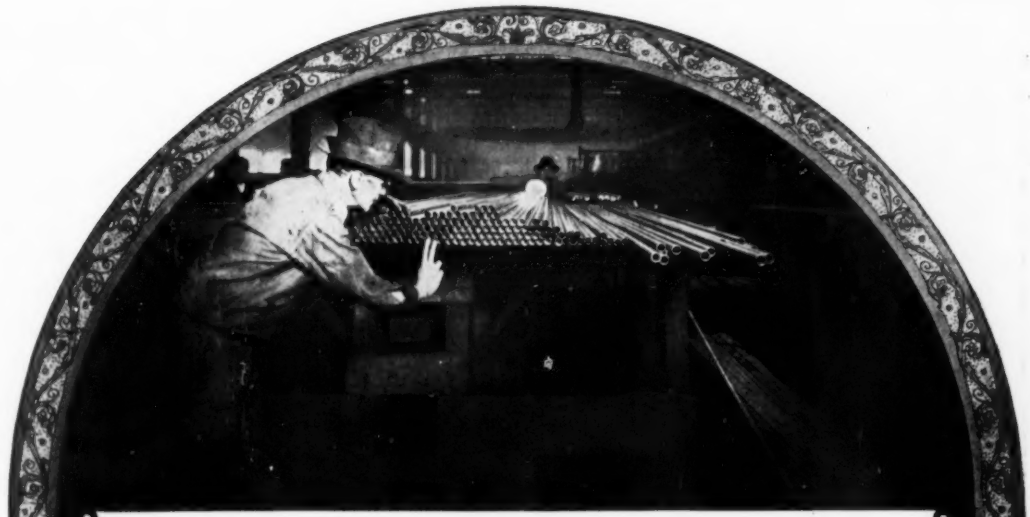

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# BRASS PIPE

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WRITING in the Plumbers Trade Journal, Mr. T. N. Thomson, sanitary engineer, compares the sizes of iron and Brass pipe required to carry the same volume of water and presents a table of sizes which, when filled in with prices by the estimator, gives a Brass installation at a cost so little in excess of iron that the difference may be ignored.

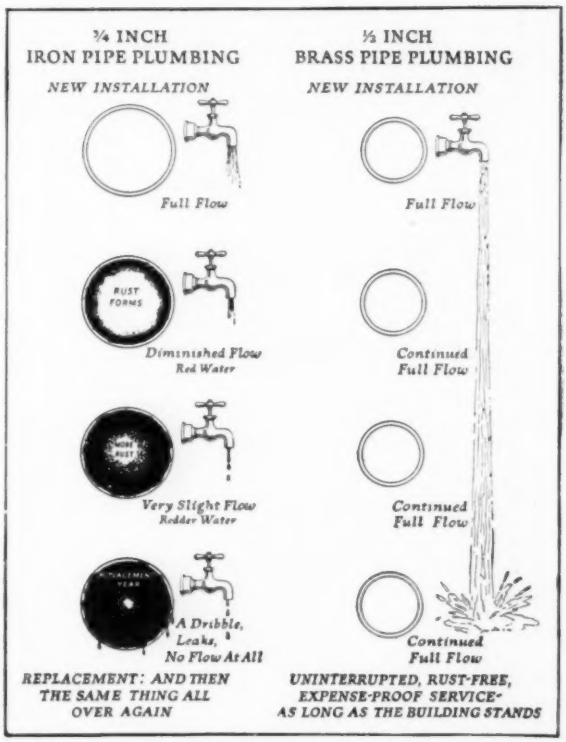
To illustrate at a glance the basis for Mr. Thomson's calculations we have prepared the diagram which appears on this page.

Deterioration of iron pipe begins the day it is made and progresses in service until the iron pipe becomes completely clogged with rust.

This corrosion, which is particularly acute in the hot water supply lines, not only discolors the water but greatly reduces or stops delivery at the fixture, and also eats away the pipe wall to such an extent that in many instances leaks appear within six years and force a renewal of the piping.

On the other hand, Brass pipe delivers at the end of any number of years of service as much water as it does on the day it comes from the mill.

*Reprints of Mr. Thomson's article are available upon request to the Association.*




### Saving in Pipe Size by Use of Brass

**From many years' experience on a variety of work, it would appear that reasonable differences in diameter for street service and cold water lines are as follows:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ½ | inch | Brass | instead | of | ¾ | inch | iron |
| ¾ | " | " | " | " | 1 | " | " |
| 1 | " | " | " | " | 1¼ | " | " |
| 1¼ | " | " | " | " | 1½ | " | " |
| 1½ | " | " | " | " | 2 | " | " |
| 2 | " | " | " | " | 2½ | " | " |

**For hot water lines, the following appear reasonable:**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| ½ | inch | Brass | instead | of | 1 | inch | iron |
| ¾ | " | " | " | " | 1¼ | " | " |
| 1 | " | " | " | " | 1½ | " | " |
| 1¼ | " | " | " | " | 2 | " | " |
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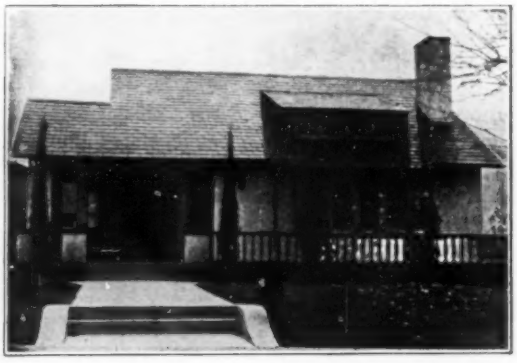

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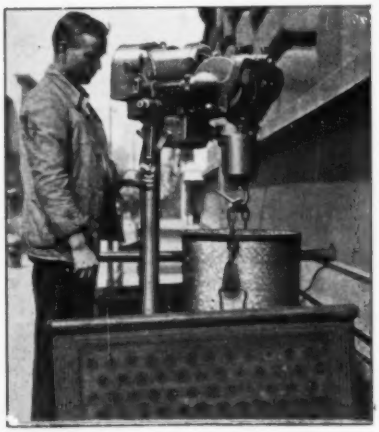

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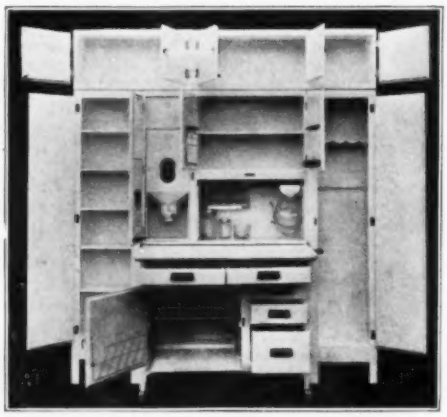

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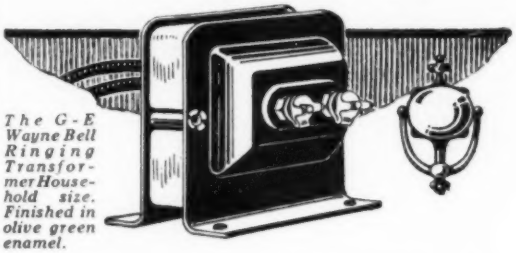

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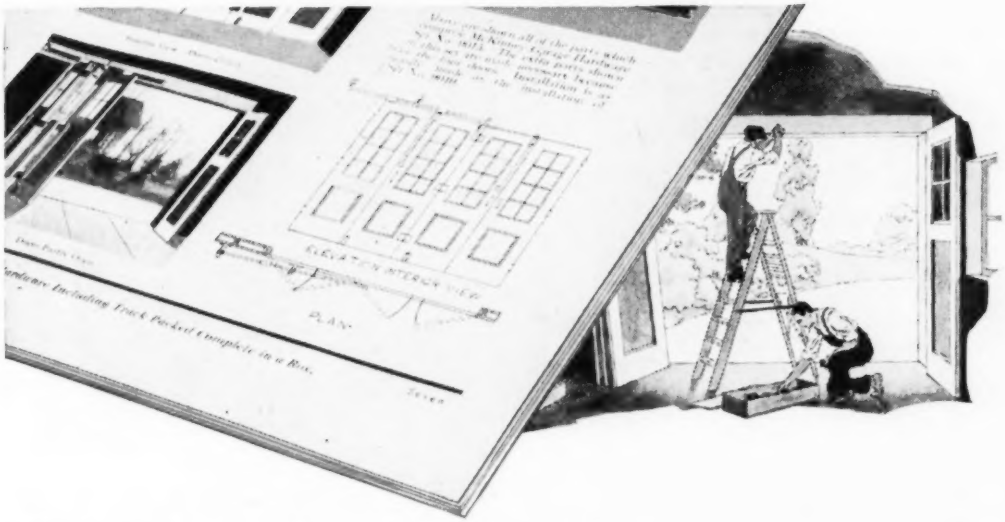

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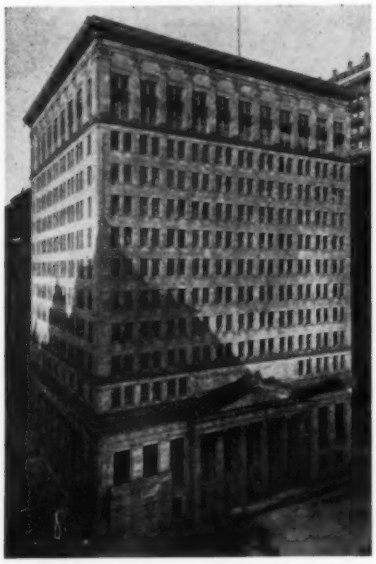

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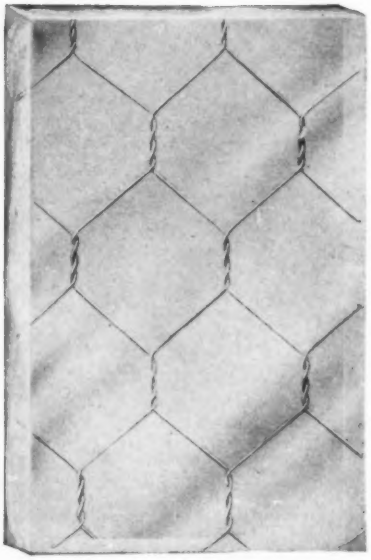

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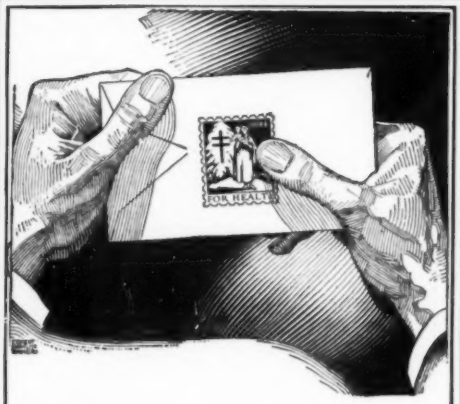


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***Stamp Out Tuberculosis with Christmas Seals***

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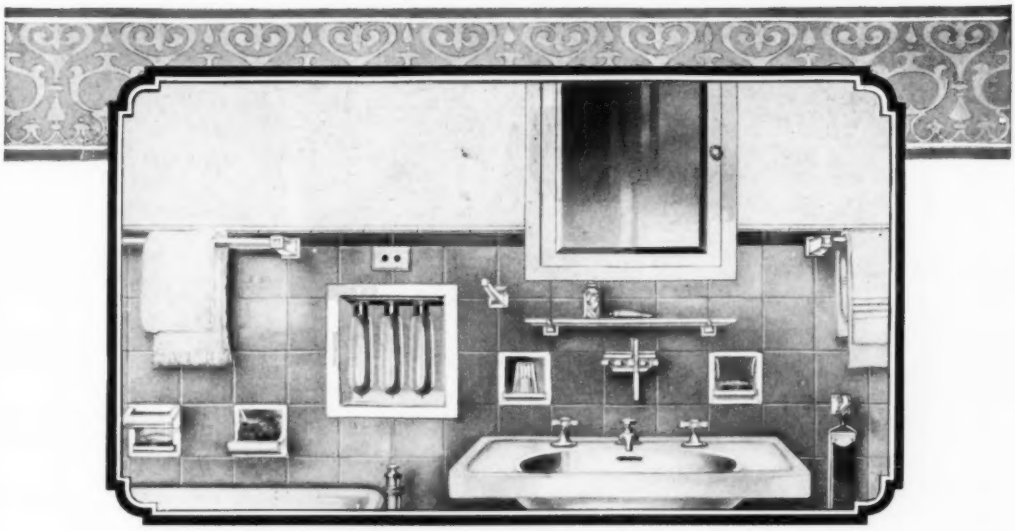
# The finishing touch to a PERFECT BATHROOM



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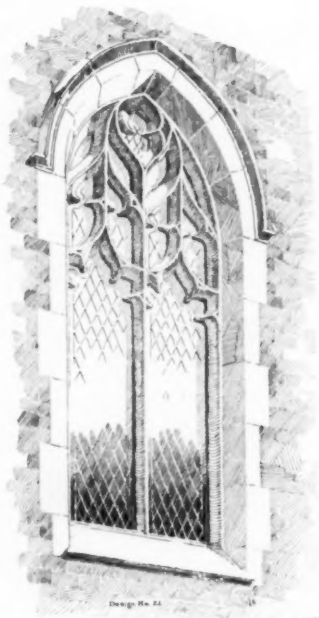

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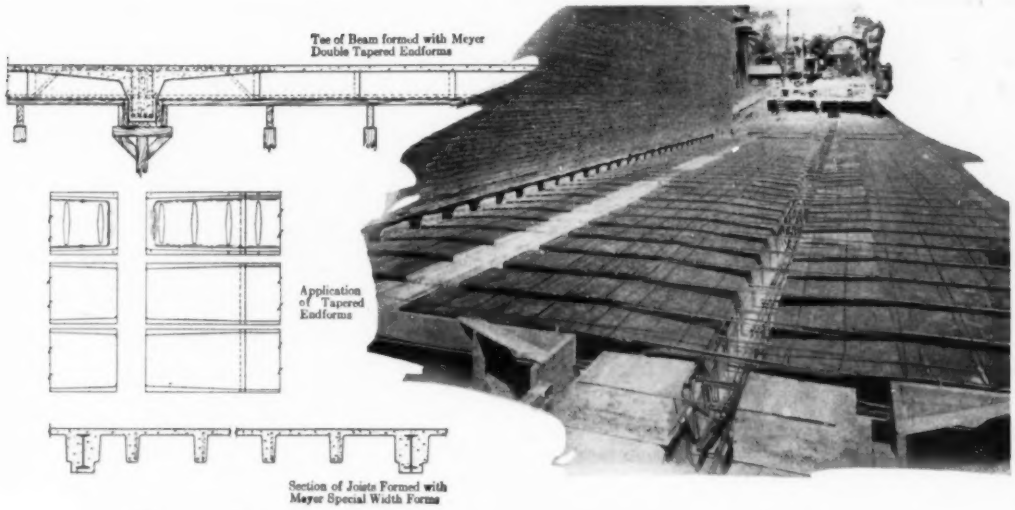
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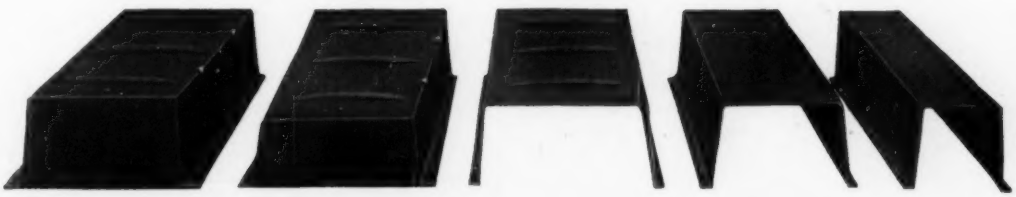

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| Dutch Reformed Church, Poughkeepsie | Allen & Collens |
| Saturn Club, Buffalo, N. Y. | Bley & Lyman |
| Second Congregational Church, Holyoke | Allen & Collens |
| University of Cincinnati Dormitories, Cincinnati | Hake & Kuck |
| St. Catherines R. C. Church, Cincinnati | Crowe & Schultze |
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| R. P. I. Dormitory, Troy, N. Y. | Lawlor & Haase |
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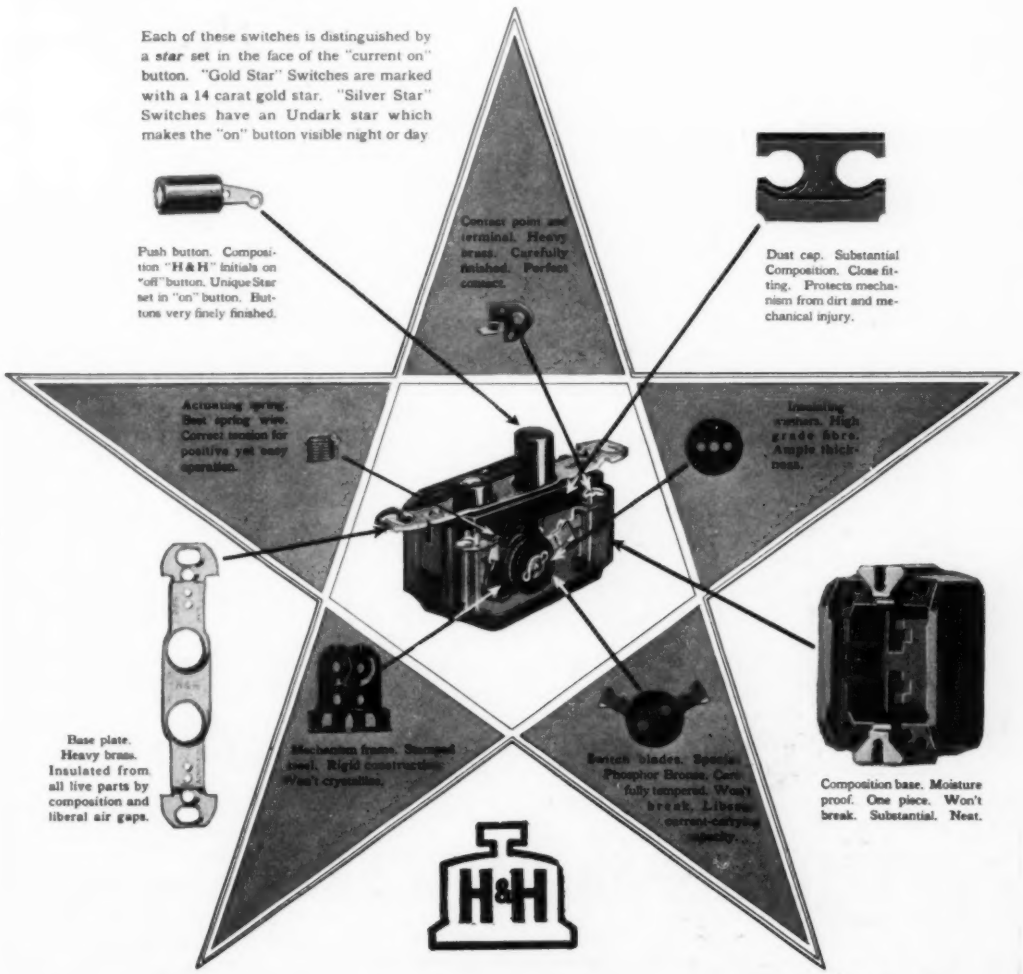
Each of these switches is distinguished by a *star* set in the face of the "current on" button. "Gold Star" Switches are marked with a 14 carat gold star. "Silver Star" Switches have an Undark star which makes the "on" button visible night or day
Push button. Composition "H & H" initials on "off" button. Unique Star set in "on" button. Buttons very finely finished.
Contact point and terminal. Heavy brass. Carefully finished. Perfect contact.
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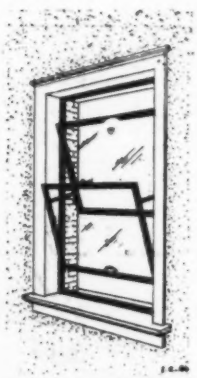

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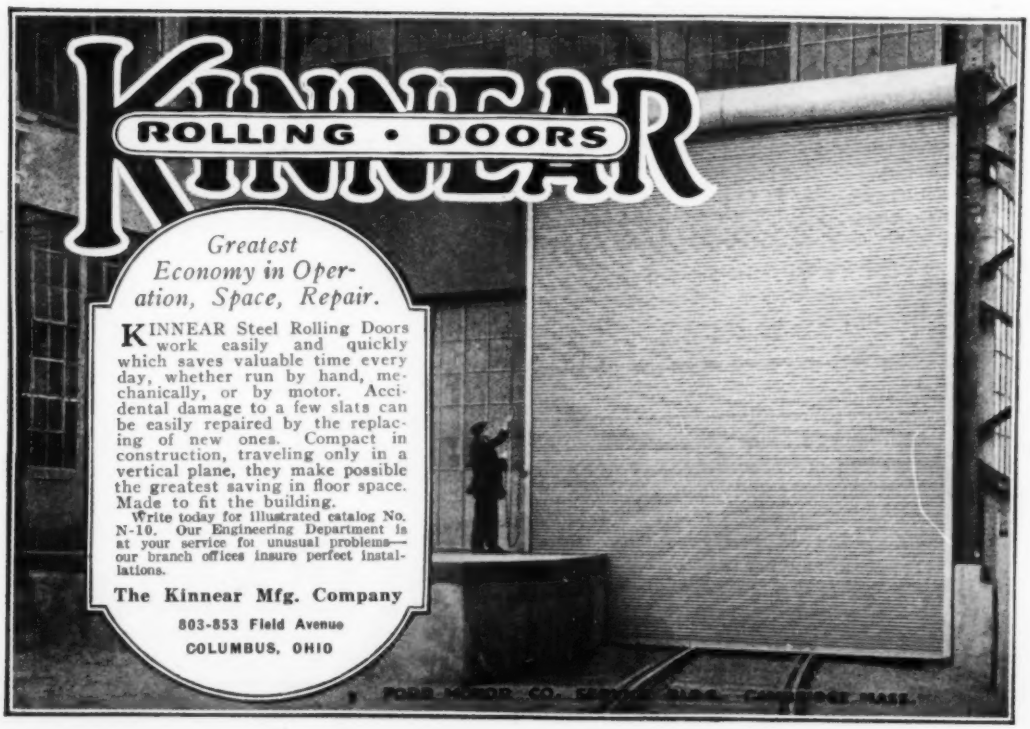


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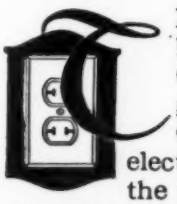

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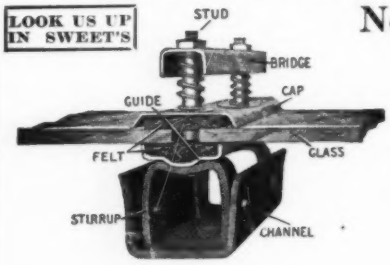


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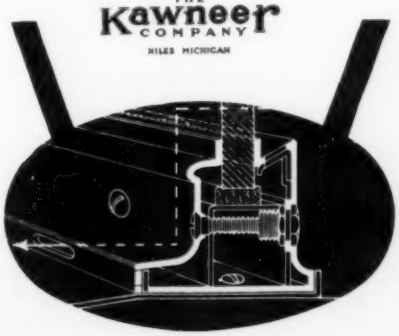

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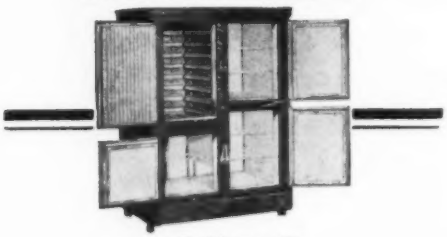

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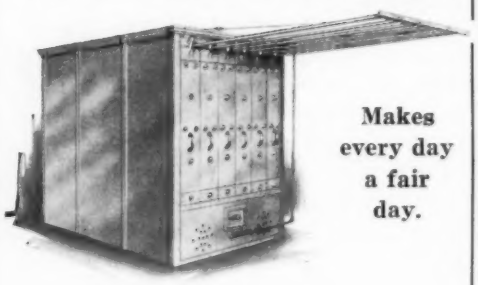

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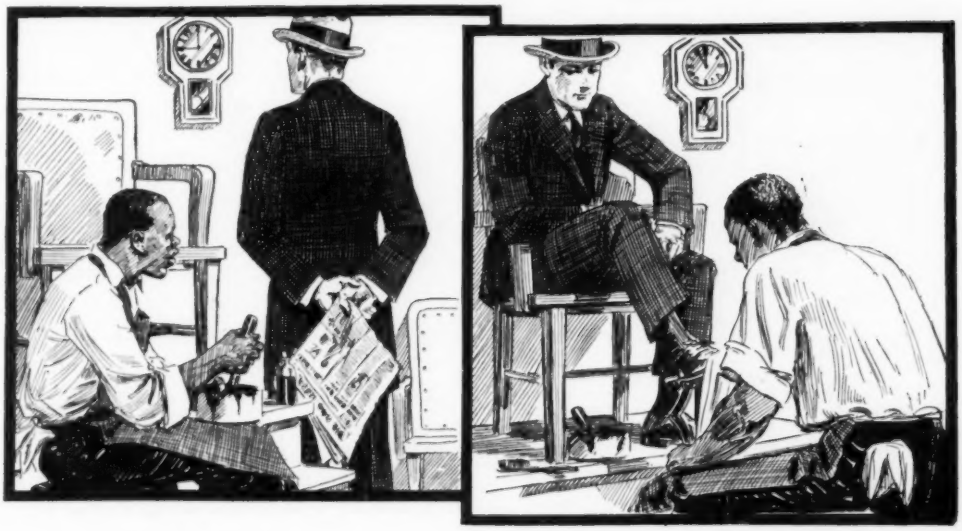

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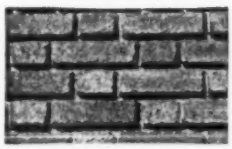

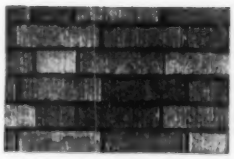

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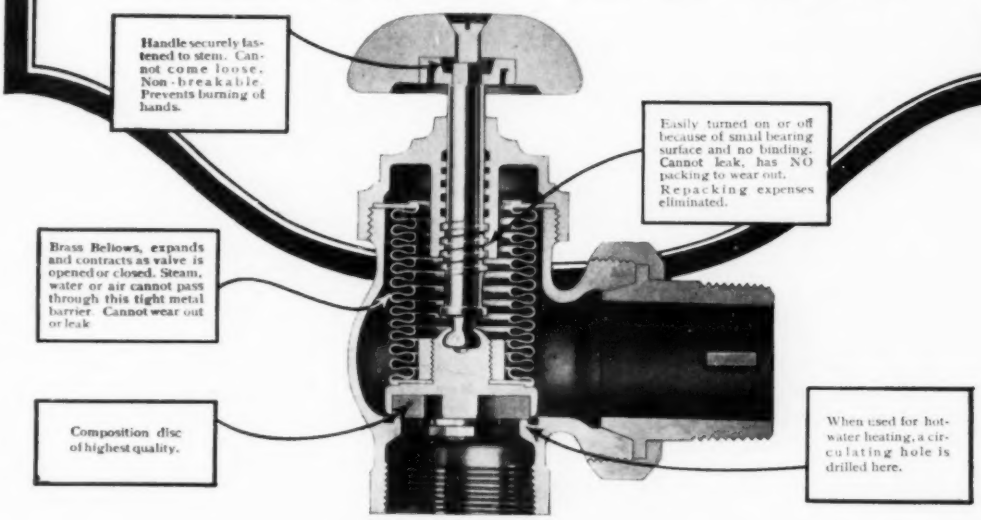
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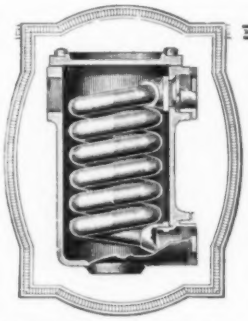

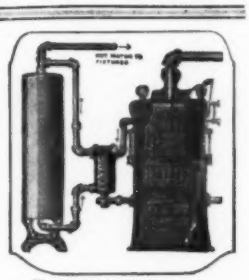

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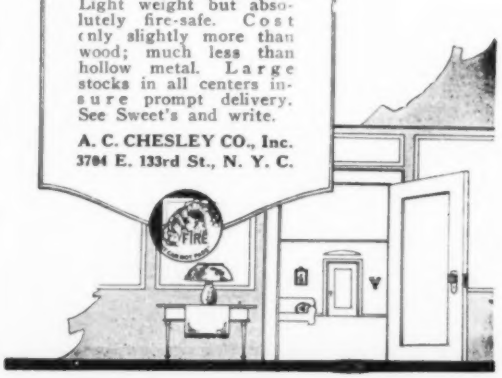

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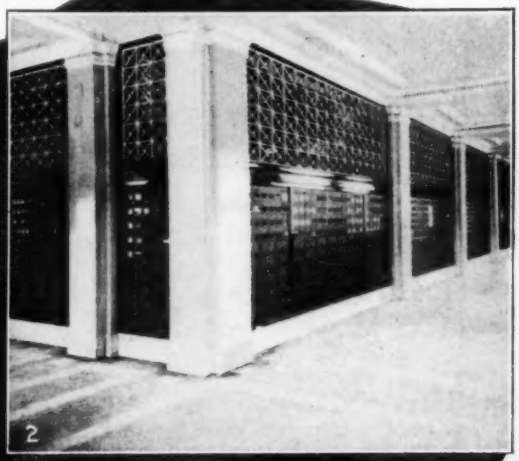

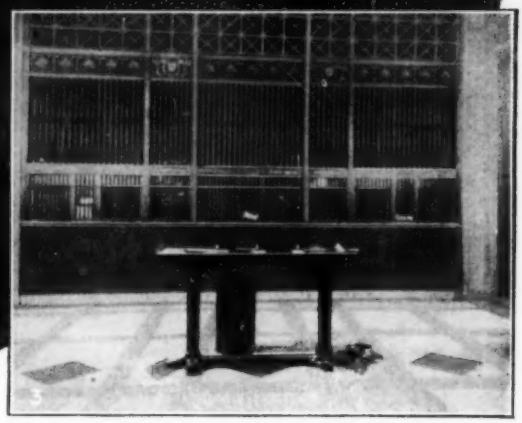

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Among our most imposing government buildings, are Uncle Sam's post offices.

And in many of them, artistic design and quality workmanship have been aided by quality metals.

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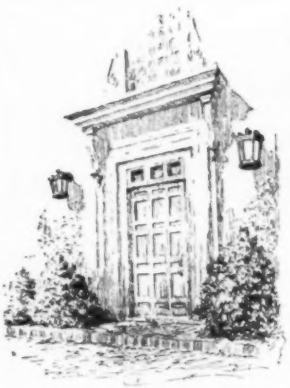
ROME BRASS AND COPPER COMPANY-ROME, N. Y.

BRASS ROME COPPER



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THE ARCHITECTURAL RECORD

Circulation Department

119 West 40th Street, New York City

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*Graham, Anderson, Probst and White, Architects.*

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FOLLOWING is an extract from a letter which we received from Mr. C. E. Walsh, chief engineer of Hotel Cleveland: *"During the four years this equipment has been in service we have had absolutely no trouble with it. There are nearly thirteen hundred windows in this building which have your fixtures and we are entirely satisfied with the equipment, especially from the point of window cleaning."*

Mr. Walsh has also advised that they have kept accurate account of their window-cleaning costs and find the initial cost of the "Williams" reversible window fixtures on their building is saved every year due to the economy of doing all the cleaning from the inside.

It is our aim to have every installation as satisfactory as the Hotel Cleveland. This is one of the reasons we carry a corps of trained workmen to apply our equipment.

*See Sweet's for details and branch offices.*

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ORDINARY plasters which are mixed with water cannot be used with safety during winter periods. On the other hand, immunity to damage even in zero temperature is only one of the many individual characteristics of Kellastone. It is mixed with a magnesium chloride solution which is absolutely non-freezing.

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The Dorics offer six unusual shades of buffs and tans, from a delicate buff to deep purplish browns and blacks.

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TIPPLED BRICK have been used very extensively in school construction. The slight elevations and depressions of the stippled texture produce a soft light-diffusion that greatly enhances the natural beauty of the brick colors and obtains enviable architectural effects in large wall masses.

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# Through a Sieve Woven Finer Than Silk

Portland cement, to meet the exacting specifications of leading engineering socities and the United States Government, must be ground so fine that at least 78 per cent will pass a sieve having 200 wires per linear inch. A silk handkerchief has but 110 threads per inch—an excellent quality of silk dress goods 187 threads. The watch in your pocket hardly calls for a more complicated and carefully adjusted process of manufacture than the making of cement.

Grinding is only one of the many operations required to make it. Yet in grinding alone, see what is required:

The rocks from the quarry, often as big as a piano and heavier, go first into a gigantic "coffee mill." It bites at these huge chunks, chips them, and finally crushes them—to pieces six inches or so in diameter.

Two finer mills follow, one after the other, reducing the stones to the size of coarse sand. After this they must be ground in a great revolving cylinder half filled with steel balls, until every cubic foot of the rock has been reduced to 14 billion pieces —until 85 per cent of them will shake through a sieve that will actually hold water, a sieve with 40,000 holes to the square inch.

And all of this is less than half the necessary grinding. The coal must be ground. For the object of all this fine grinding of the raw materials is only that it may be fused into crystalline clinkers. And to fuse it requires pulverized coal—or its equivalent. Most plants use pulverized coal.

The coal must be ground as fine as the raw stone. Eighty-five per cent of it or thereabouts must go through the sieve that holds water. And that often means two grinding operations.

There is still the clinker to be ground. It is glass-hard to begin with. It must be ground first to the fineness of sand, and then ground and reground in another cylinder of steel balls—until at least 78 per cent of it will go through the sieve woven finer than silk.

Huge bowlders to an impalpable dust. Common coal to an impalpable dust, and finally, after the burning, glass-hard clinker to an impalpable dust. That is the making of cement. And eight heavy grinding operations are required in the process.

Grinding is only one of the lesser heat and power consuming operations in cement manufacture.

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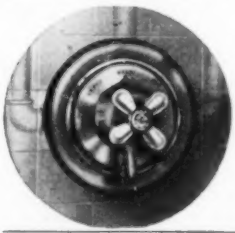
Bathroom fixtures are very much alike to the eye when first installed. It is left to the unfortunate—or fortunate—owner to discover the hidden quality or its absence after continued use. **LEONARD** Mixing Valves are constructed with all castings, interior and exterior, of bronze, and with all working parts of phosphor bronze. No metals can surpass these in long life and withstanding the action of water.

*The complete story is in our catalogue. May we send it?*

## LEONARD-ROOKE CO.

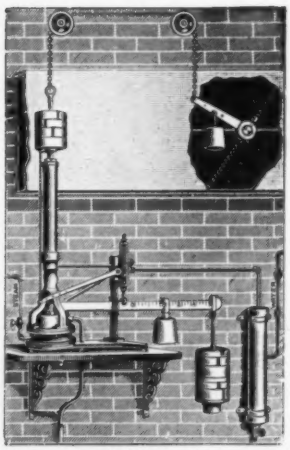
**Providence, R. I.**



*LEONARD Thermostatic Mixing Valves are made in eight sizes, supplying sufficient volume of tempered water to meet all requirements from the individual residence shower to battery control of twenty-five or thirty showers in, for instance, the institution, school, hospital or Y. M. C. A.*

**1921 Model** TRADE LOCKE MARK **With Improved Pilot Valve**

# DAMPER REGULATORS



THE LOCKE Hydraulic Automatic Damper Regulator was invented by Mr. N. C. Locke at a time when the regulation of dampers was chiefly by hand and, at best, at a variation of 10 to 15 lbs. steam pressure. The LOCKE Regulator makes it possible to automatically regulate from one to twenty dampers, from the smallest to the heaviest, at a variation of steam pressure of one lb. or less. A LOCKE Regulator is as essential as coal in the up-to-date power plant. There are $3,000,000 of "LOCKE'S" in active use today, whose purchase was based on the fact that official Government tests prove that a "LOCKE" means 10% to 14% saving in coal consumption. Particular attention is called to the LOCKE "Little Giant" Damper Regulator, especially adapted for greenhouses, for small plants of one or two boilers, and for any ordinary heating work.

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FOR UNDERGROUND STEAM OR HOT WATER PIPES
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means the practical elimination of heat losses. RIC-WIL installations commonly show efficiencies of 85% —there are cases where it has shown better than 90%. And not for a week or a month, but continuously, and after years of service. This means just one thing—economy—conservation of the coal pile. Economy is the *only* reason why underground pipes are insulated at all: it is the *best* reason why they should be insulated by the RIC-WIL METHOD.

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A VERY slight pressure of the fingers operates one of these *De Luxe* Toggle Flush Switches. The handsome brass toggle arm is in harmony with the plate, and may be furnished plain or with a glass tip covering genuine *UNDARK* Radium Luminous Material, which locates the switch in the darkest corner.

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THE architect who includes the Kernerator in his plans secures for his clients the height of household convenience. In his houses and apartments there is no garbage and refuse problem, for the Kernerator quickly disposes of all household waste at its source.

The Kernerator is simple and durable—a brick incinerator built into the base of the chimney when the building is erected and a hopper door in the flue above. It disposes of all household refuse **without cost,** for the refuse, itself, is the only fuel required.

*For complete information see page 2124, Sweet's 1922 Catalog.*

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The installation of Deagan Tower Chimes in the Campanile shown here is an example of our intimate cooperation with the architect.

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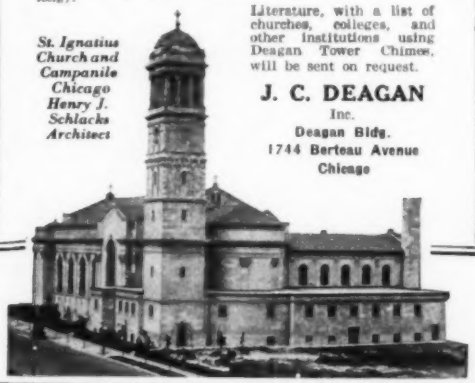

# Another Jenkins Standardization

## —what it means

*Jenkins Valves, and* ***Jenkins Only****, are installed throughout the new First National Bank Building, Jersey City.*

*Architect: Alfred C. Bossom, New York City; Plumbing and Heating Contractors: W. W. Farrier & Co., Jersey City.*

*Fig. 106, Standard Brass Globe Valve, one of the many types of Jenkins Valves used.*

There are many and obvious reasons why STANDARDIZATION OF JENKINS is true valve efficiency and economy—the six most distinct are:

(1) An assured valve service—for Jenkins Valves have strength and proportion to meet the most severe conditions.

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(4) Parts are interchangeable, made so by careful and standardized manufacture. "Veteran" valves can always be supplied with parts that "fit."

(5) Nation-wide distribution, through supply houses everywhere, carries Jenkins Valves and their parts to every locality.

(6) Money is saved, for Jenkins Valves go into service and stay—a quality which, alone, would make them the most economical.

*Jenkins service can only be expected from genuine Jenkins Valves—specify Jenkins "Diamond" Valves, and avoid imitations.*

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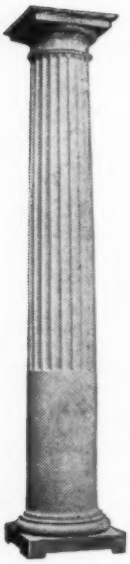
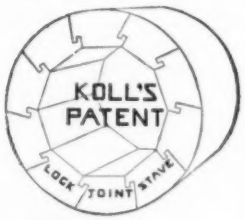
Jenkins Valves
SINCE 1864

# Note the Lock-Joint

## COLUMNS



There is a good reason why so many Architects specify exclusively

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*Durable Good Looking Noiseless Warm Resilient Sanitary*

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T-M-B Flooring laid on new or old floors of cement, wood, composition, etc., will never crack, wrinkle or loosen. It successfully withstands excessive wear. Always is clean and sanitary.

Its resilient texture makes it restful and quiet underfoot. It is warm and non-slippery. There are no seams or joints to mar its attractive appearance. Made in three pleasing colors.

You will find T-M-B Flooring unequalled for offices, schools, corridors, stair treads, and wherever super-floor service is required.

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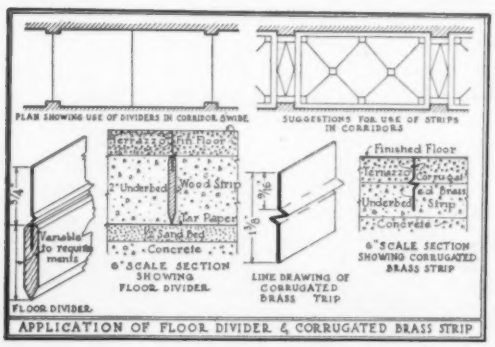
## Terrazzo Floor Divider and Corrugated Brass Strips

DEL TURCO laid floors are guaranteed against cracks for a period of three years—for the Del Turco strip is a continuous joint in the terrazzo and underbed, absolutely separating each panel from the one adjoining and (there being no perforations) preventing their locking together. Look for the complete data in Sweet's, 17th Edition, pages 392-393.

**L. DEL TURCO AND BROS.**
229 *Cleveland Ave.*
**HARRISON NEW JERSEY**

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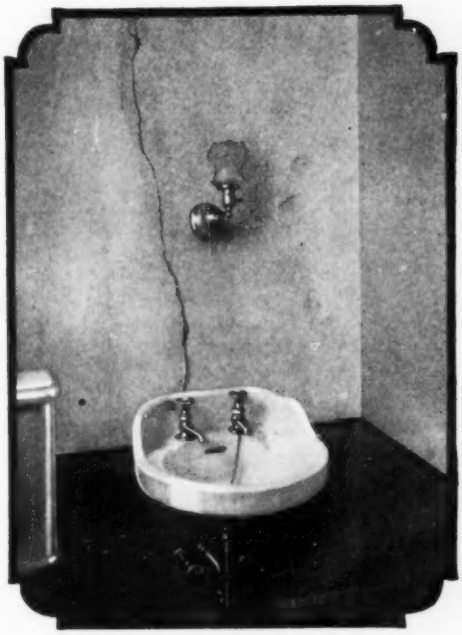
# Keep the Cracks Away



PLUMBING pipes and heat ducts are one of the causes of unsightly plaster cracks such as that which disfigures the lavatory shown here. Cracks like this soon make the finest home look old—take dollars away from its sales value.

Less than one dollar invested in Mahoning Metal Lath over the pipes under this wall would have prevented the crack. Yet $10 spent now will not repair the damage.

The additional investment required to use Mahoning Metal Lath at the five points of crack prevention is surprisingly small—less than $100 on the average $10,000 home—the satisfaction obtained is wonderfully great.

A talk with any architect or builder about Metal Lath will convince you of the value of this fire-resistive, crack-preventing plaster base in any building.

**5 Points of Crack Prevention**

**Metal Lath Protects Against Plaster Cracks When Used:-**

- *A* On ceilings of prominent rooms
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- *C* Back of wainscots and tile mantles
- *D* Across plumbing pipes and heat ducts
- *E* On exterior walls for successful stucco.

Youngstown Products

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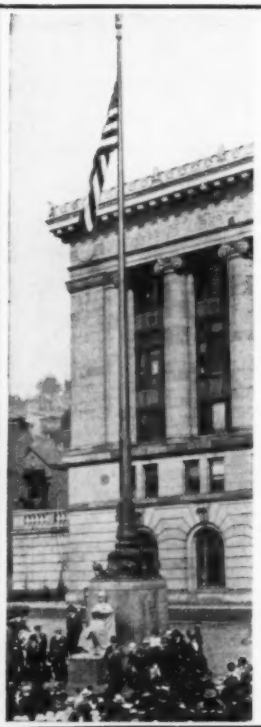

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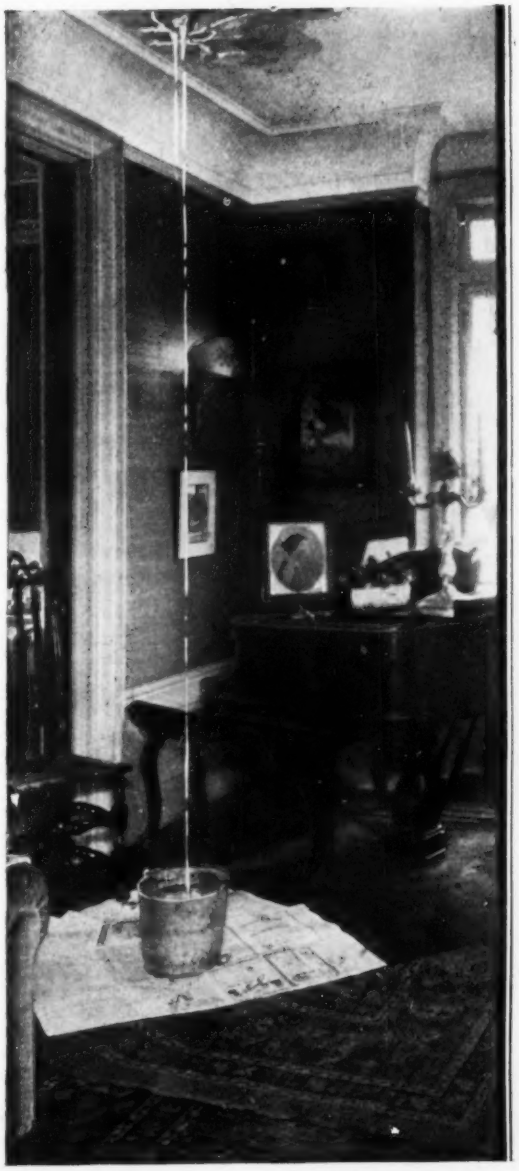

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are constructed for long service and dependability. Brass in all parts where rust or corrosion is possible, and proof against leakage to the ceiling below. Installation cost cut down to 60% and repairs eliminated.

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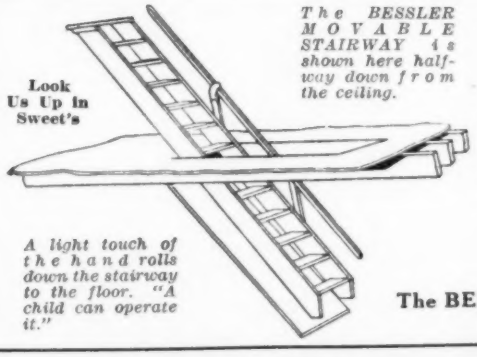

*The BESSLER MOVABLE STAIRWAY is shown here halfway down from the ceiling.*

*A light touch of the hand rolls down the stairway to the floor. "A child can operate it."*

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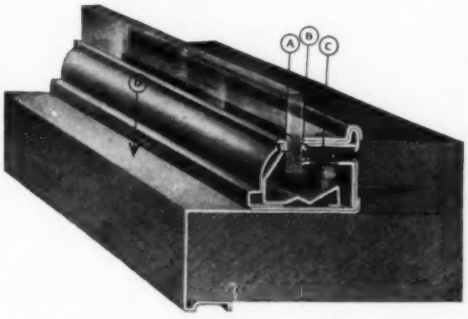
A is the point where the outer member presses against the glass, when the delicate watch-like turning of the key at C brings the glass automatically into contact with the rabbet of gutter B sliding on the anti-friction Murnane Self-Adjusting Setting Block.




**No. 110 Zouri Combination Key-Set Sash and 705 Sill Covering**

The Sill Covering D extends from the inner side of the rabbet to the lower edge of the face, eliminating joints, perpendicular screws or nails — positively protecting the wood against deterioration, for leakage is impossible.

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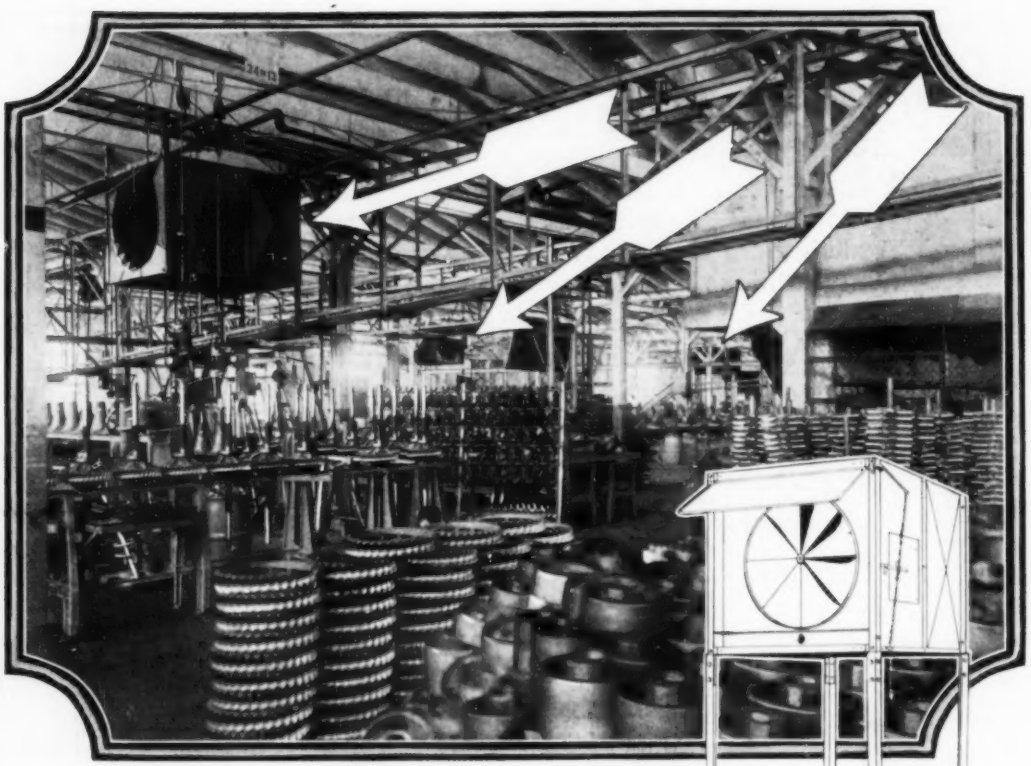
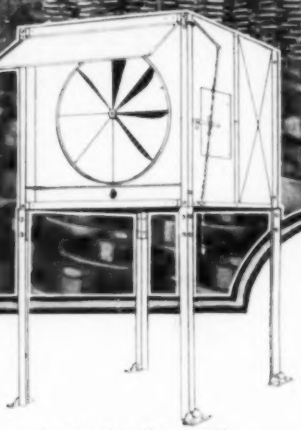
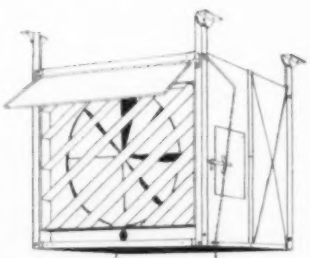


*Ford Tractor Plant — Detroit*



*Floor Type of the Ilgair Unit Heater*



*Ceiling Type of the Ilgair Unit Heater*

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